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*Illustrated.

FIGURES which are compiled in the auditor's office and are sent to superintendents often carry hardly enough weight to make their compilation a paying investment. In the first place, in a great number of cases the superintendent cannot from his own records check up these figures. Naturally, if they make his showing bad he has a feeling of resentment which results, however, in no better showing next month because he cannot analyze his figures. One great trouble is that in the history of the organization of a railroad company the various individuals who have in the past had authority to order the compilation of certain classes of information have left the dry form of what was to them a living and useful work, and these forms have been deposited one on top of another until on some roads the mass of them has become almost impressively superfluous. A new man becomes general manager. His particular temperament, or the particular situation which he has to meet, leads him, after careful study, to desire certain daily or weekly information. He issues orders that such information shall be compiled. On the other hand, he does not understand why certain information has been compiled in the past and is being compiled; but he is afraid to issue orders to abandon its compilation because he respects the work of his predecessor, and he fears that the reason he is abandoning it is because he does not understand it. A very considerable sum of money could be saved by most of the railroad companies in this country if a thorough housecleaning were made of all information, statistics, etc., for which there is not now a present need and of which those for whose benefit it is supposed to be compiled cannot directly see the advantage.

THE tramp problem shows no signs of letting up. Even if local magistrates were to waken to their duties and pursue a vigorous policy, the railway, being in the thick of the conflict, cannot do otherwise than constantly force the fight. A recent number of the Scranton *Times* tells of conditions in Northeastern Pennsylvania as follows:

> It is not uncommon for five or six arrests of men and boys to be made daily by local railroads for illegal train riding. As long as men endanger their lives by jumping on or off of moving trains, riding on trucks, or between the cars on coal trains, and in every way endanger their life and ride in the most uncomfortable manner, one would think they were punished sufficiently, without the railroad authorities hauling them before the courts and locking them up at public expense; but this is not all; the railroads are made the victims of broken freight cars, and merchandise is stolen by the hoboes. And the free riders are too often a class of criminals who live on the public by stealing, enter homes at night, and quibble at nothing to get a living without work. In the best interests of the public, the railroads are doing a good service in their efforts to break up illegal train riding. The tramp problem, via railroad or public highway, is a big one that has not yet been solved.

In Western Massachusetts the news columns of the daily papers tell of similar activities. On the Pennsylvania Railroad, the less offensive class of trespassers—berry pickers, picnic parties and such like—are said to be making much work for the railroad police. Why would it not be a good thing for the railroad press agents to compile a large record of arrests and convictions, and of wise and unwise action on the part of courts, and circulate it among railroads and magistrates generally? Some railroads do not do their full duty. Many magistrates do not tackle the problem seriously enough. Apparently the railroad officers of the country are the only people who can stir the magistrates. Other interests suffer from the tramp nuisance, but seem to be helpless. Are the railroads to remain forever helpless? To exterminate tramps is, perhaps, more distinctly altruistic than to run "good farming specials" and teach farmers how to raise potatoes, cotton and cattle; and the job is far less pleasant; but the satisfaction of doing a good thing for society is present in both cases.

A NEW idea in the conduct of safety first campaigns has been inaugurated on the New York Central Lines. A safety exhibit car, described on another page, has been fitted with models of safeguards for machinery and other apparatus, and also with photographs showing graphically how the more common kinds of accidents occur and how they may be prevented. While the safety department of the New York Central has conducted an aggressive and successful fight toward the reduction of accidents to employees, it was felt that there were many men who could be reached and influenced by the safety exhibit car that were not now actively interested in the safety first movement. For instance, among other things, it has been the practice of Mr. Dow, the general safety agent, to hold safety meetings at terminals and division points to which the men and their families are invited. This is all well enough, and such meetings have been largely attended, but many of the men do not feel altogether at home at such places and, therefore, do not attend. On the other hand, these men will not hesitate to visit the exhibit car, which they can conveniently do in their working clothes and without special effort. Moreover, the working models will make

a much greater impression on them than the stereopticon pictures which are shown at the public meetings. While the exhibit car is also accompanied by a lecture car, the number in attendance at these lectures will necessarily be very much smaller than at the mass meetings, and ample opportunity will undoubtedly be afforded for the asking of questions and the discussion of features which may not have been made clear to some of those in attendance. After the lecture has been completed, those present can visit the exhibit car and have a very much better understanding of the various features of the exhibit. The safety first movement on the railroads has been very successful throughout the country and a large number of roads have organized the movement in such a way as to place it upon a permanent basis. One of the greatest difficulties in furthering it will be from time to time to so modify or change the methods of encouraging the employees to follow it that they will not lose interest. From this standpoint the safety exhibit car on the New York Central is a most interesting development and promises to add much to the interest of the movement on that system.

THE Philadelphia & Reading carried to and from the Gettysburg anniversary celebration in July about 70,000 passengers —3½ million passenger miles on the 25-mile Gettysburg branch alone; and it expended around twenty thousand dollars for the insurance of these passengers against death or injury by collision. That is to say, this 25-mile line was fully equipped with automatic block signals, for this occasion; and after the rush was over the signals were taken down. This very unusual installation is described on another page. We have no official figures, but, roughly, the materials and work cost $25,000, and the salvage amounted to $7,000. Though the block system has been used in this country for over 40 years, and under a great variety of conditions, it has been difficult in the great majority of cases to learn with any precision the financial considerations which were held by the owners of the roads to justify the initial expenditure. Here, however, the case is quite clear. There was no thought of the future; the whole expenditure was chargeable to two temporary elements: 1, to secure the shortest practicable time interval between the excursion trains, and 2, to prevent collisions; in other words, insurance. If the receipts from these passengers were as much as two cents a mile the gross amount for the 25 miles was $70,000. This makes the insurance very costly; perhaps 25 per cent. of the whole income. This, however, is not a fair calculation. Most of these passengers traveled over other and longer divisions of the Reading, and the company's total income from them was much more than the sum named. Any loss by reason of collision would have been a burden on the treasury of the whole Reading system and any disaster of any kind would have affected the reputation of the company everywhere. The expenditure for signals therefore cannot be fairly charged to the Gettysburg branch. The adoption of the automatic block system instead of the manual—which, with the electric train staff, well adapted to temporary use, would insure a high degree of safety—must be considered a great triumph for the track circuit and for the young American engineers who have perfected it.

GOOD railroad service receives appreciative notice, now and then, in spite of the critical spirit with which the atmosphere is constantly charged. In freight service, one of the cheapest things in the world, appreciation depends largely on cold calculation; and any road, even one with a doubtful reputation, can extort commendation if it "delivers the goods" and gets the consignees to note the fact. But we refer now to passenger service, and the illustration that we have in mind is the following note from the Philadelphia *Public Ledger*:

> When President Wilson makes a quick trip across the state we hear a lot about the "terrific speed." But tens of thousands of Philadelphians who go to Atlantic City every week ride equally fast, but they do not seem to appreciate it. All the 60-minute trains on both railroads [Pennsylvania and Reading], and many of the other trains as well, travel more than 70 miles an hour for a considerable part of the distance. The average speed for the entire distance is around 65 miles an hour for a few of the trains each day, and they must do at least 75 miles a part of the way. These are America's swiftest trains, but they have been doing their stunt from Philadelphia to the sea for so long [15 years or more] that travelers on them forget the novelty.

Yes, indeed! It is no novelty. And these speeds are made on a considerable number of other lines, between the Atlantic ocean and the Missouri river. It is not novel, but it is costly. The Atlantic City lines have an advantage in their straight and level country, their equable climate and their freedom from heavy freight traffic; and they deserve the credit which they accorded for very high speed, very good roads and a high record for safety. But expenditures of money and skill, equally creditable when considered in comparison with the obstacles to be overcome, may be seen in connection with large numbers of fast trains elsewhere. One reason, no doubt, why good passenger service often fails to elicit commendatory notice is that in our widespread luxury we get into the habit of demanding the best everywhere, whereas, in the majority of cases only second best can be afforded. We want more than we can pay for. Here, as in other matters, virtue is commonplace, while the opposite excites eloquence, even in the ignorant. A hundred rustic "guys" can denounce a railway's shortcomings where only one cool-headed citizen will appreciate the costs and obstacles, and make the comparison with other features of civilization which are necessary to properly value such a product of railroad enterprise as an extensive train-service which makes a perfect record, with the highest speed, for a long series of months or years, and all at a cost of two cents per mile per passenger, or less. The Atlantic City lines are not less notable for speed and safety than for economy. This is a very proper ideal to be aimed at everywhere; but complete realization, even on the best roads, must be slow in coming. In the meantime thoughtful editors can find many other places where they can bestow praise. Many editors are now friendly to railroad presidents, and railroad financiers and traffic managers; they can find equally good things to engage their interest among the superintendents and master mechanics, the men who manage these fast trains.

TELEPHONES IN TICKET OFFICES.

POLITENESS has been the rule in ticket offices from time immemorial. It was the rule even in the old days of the browbeating ticket seller, who abused passengers at will when their conduct did not suit him. The agent's barbarous doings were exceptions. And, unfortunately, exceptions are common, even to this day. But with the introduction of the telephone this rule has been made more important and significant. In answering questions over the telephone the clerk who is disposed to be ungenerous to passengers has a new and different temptation to indulge his unbusinesslike propensity, and some railroads have issued circulars specifically reminding station men that their behavior at the telephone was likely to be an important factor in making or marring the reputation of the company.

But is there no limit to the demands on the ticket agent's courtesy? Can people go on asking their idle questions forever? At the ticket window the stream of questioners sometimes lets up; and for a part of the time the window can be closed. But with a telephone in the office there is no time limit, and the number of possible questioners is limited only by the size of the town. Everybody, even ladies in their boudoirs, or the janitor in the back cellar, can ask questions; and at train time, when the agent is busiest, the questions are most numerous. One of the earliest railroad agents to have a telephone in his office was H. C. Hamilton, about 1877. Asked by the writer at that time how it affected the office routine, he replied that the principal change was in the increased wear of shoe leather, walking to the other side of the room to answer the inquiries of merchants expecting freight. From that day to this it has been the same. At the Grand Central Terminal, New York, the more extensive information bureau is not that which is visible to the public at the time-table case in the waiting room, with its two or three attendants; it is in the

secluded telephone room, where ten men spend their time in answering questions; and for a large part of the day four or more of these men are at work at the same time. And they deal almost wholly with passenger business, no freight station being connected. The telephone has become a part of everybody's life, and the railroad man can be no exception.

This subject was called to mind by the receipt of a letter from a correspondent, a woman living in a small city not far from New York, which in substance reads as follows:

How is it that in the matter of telephone communication our railroad stations are the least enterprising of any business places with which people have to deal? Desiring, one day recently, to make a somewhat unusual journey, on short notice, I took the very natural course of going to the telephone to make inquiries of the ticket agent as to the time of the trains, and the fare, and the routes; but what was my surprise to find that there was no railroad office listed in the telephone book—except the office of the freight agent, which, being a quarter mile away from the passenger station, was not able to be of any benefit to me in that particular case.

With a view to giving to this question a comprehensive answer we made inquiries of railroad officers in New England, New York, Pennsylvania, Ohio, Illinois, the far west, the south, and Canada, and we have received a lot of interesting replies. To the question of the ticket agent, whether there can be a limit put to the number of his questioners, or to their fatal ingenuity, the answer is, unequivocally, "No." He must be patient and courteous till he dies. In addition to this he must be intelligent and well informed; his answers must have solid substance as well as good form. Moreover, this is good for him, personally. An officer of the Chicago, Burlington & Quincy informs us that in cases on his road the station agents have been the first to call the officers' attention to the need of a telephone, believing that their own advancement would be promoted by the use of the telephone, in attending to the wants of patrons, as a means of making for themselves a good reputation.

Taking it for granted that a railroad station should be conducted with as much intelligence and enterprise as a store—stores have taught us most of what we know about pleasing customers—we may say it should have (1) a telephone in the ticket office, (2) one in the freight office, and (3) a pay station (booth) in the waiting room; and our correspondents furnish a mass of testimony as to the wisdom of providing adequate telephone facilities which we will try to summarize.

Taking the last point first, a telephone—or a sufficient number of telephones—for the convenience of the public, is in these days only a reasonable convenience. In the stations of the subway in New York City, the State authorities are moving to have public telephones installed, even though they are obliged to go to the legislature for a special act, the law under which the subways were constructed having been drawn in such strict terms that at present the premises cannot be used for other than transportation purposes. With telephones in railroad stations the inspector of stations should see that the agents take sufficient interest in the booths to know that they are always kept in neat and presentable condition. It is worth while also to take enough interest in the service to keep track of the passengers' complaints, if any are made. The service should at least be as good as can be had at first-class drug stores. The nickel-in-the-slot machines are destined to make the telephone universal, and users of the wires desire, of course, to get as good service from one telephone as from another.

With up-to-date superintendents, the telephone in the freight house has long since fully justified itself. While it adds to the number of questions which the freight agent or his clerk must answer, it is a means of decided economy in expediting the delivery of freight. One superintendent says definitely that the telephone is much more than paid for by the number of days saved on cars of bulk freight, through the facility it affords for giving to consignees prompt notice of arrival. The value of this feature is especially marked in rural districts where mails are infrequent. Practically all our correspondents say that their stations have telephones in towns where exchanges are in operation; but on the Missouri Pacific, we are informed that even the "farmers'" lines are in some cases run into the stations.

The ticket-office telephone, not being so obviously profitable as the one in the freight office, has not made so much progress. Some officers intimate that their own roads are not in this matter quite up to the needs of the public. In the large cities the information bureau, with its attendant always on duty to answer questions, has become an established institution. At the other extreme, the small country station, manned by a single agent, the telephone also does its full duty, as the agent is not overburdened with so many duties and the questions coming to him are not burdensome in their number. But in moderate-sized towns, the situation is frequently rather complex. One manager says frankly that this subject is one of the most troublesome with which he has to deal with in the station service. It will often happen that the agent, or the agent and his assistant, are interrupted in their work to an unreasonable degree, while yet the employment of an assistant, even at a small salary, does not seem to be warranted. A girl, employed especially for telephone work, does not always fill the bill, for many of the questions coming over the telephone have to do with rates of fare and other matters concerning which only a well-posted ticket man can answer. Questions come thickest just about train time, when a ticket seller is busiest. And there is no escaping many unnecessary questions. The manager of a Western road says:

It is a fact that this convenience is abused. Take the early summer especially, when people are planning to go on vacations, it takes practically all the time of one man, in towns of any considerable size, to answer questions and quote rates; and two-thirds of the rates are quoted to points to which people never have any intention of going. They merely think it would be a nice trip, and so they satisfy their curiosity about trains and fares. And, once having become used to the telephone, people will call up on the 'phone to see if a train is late when they are expecting a visitor, or if they are taking a trip, even if there is no expectation that the train is late.

But, whatever the obstacles, the telephone is necessary; and, having made it a part of the machinery of an office, there is no rational course but to keep it in the best possible working order. If there is a competing railroad in town the spur of rivalry will be always present. If there is no competitor and the spur of ordinary business ambition is not enough, the State Railroad Commission, or the shadow of coming decisions of the commissions, should be a sufficient incentive to good service. Missouri, Kansas, Nebraska and Oklahoma have already passed laws to make the railroads provide the facilities the people want.

Many of the most enterprising railroads print the telephone numbers of the passenger offices in their advertising matter, and this practice will no doubt be extended. One passenger traffic manager believes that the time has already come when the publication of time-tables in local newspapers is unnecessary; people desiring information about the trains will call up the railroad office. Where the ticket office and the freight office are together the entry in the telephone directory should clearly indicate that the number is available both for passenger inquiries and for freight inquiries; and where the offices are separate the same information should be made clear.

The railroad with which our woman friend had to deal evidently was not quite up to date. The superintendent who has charge of that station may expect to hear from the State Public Service Commission, unless his state is an unusually slow one. As one general manager says in his letter to us: "The telephone; electric light; municipal water in place of a station pump; water closets heated and lighted, instead of the old arrangement; flower beds and shrubbery from the nursery; improved driveways (*i. e.*, paving block, instead of dirt roads); janitor service; matron service, and other things which might be enumerated, are fixed charges which have come to stay, and which have added their weight to the very considerable excess 'cost of living' over what our fathers knew a generation ago; or even ten years ago, for that matter. Everybody has become accustomed to finding a telephone on his desk, and to class as indispensable many facilities which were unknown when you and I entered railroad service." To this condition the railroads must conform.

ORGANIZATION PROBLEMS.

IN making suggestions looking toward a better form of railway organization, Mr. Bailey, in a letter which appears in another part of this issue, has made use of a chart to more clearly define the lines of responsibility which control the different officers and men in the organization. Marked improvements have been made in the conditions on some roads where attempts have been made to chart the existing organizations in this way. In many cases it became apparent almost before the work had been well started that there were possibilities of conflict of authority because of the crossing or confusion of the different lines. To overcome this it was necessary, at least in some cases, to make rearrangements and changes. Generally speaking, the simpler the form of organization the more efficient it is, and a good test of its simplicity is to attempt to diagram or chart it. If the lines of authority are not clearly evident so that the chart may be easily made, something is wrong and needs to be remedied.

Even if the organization can be clearly charted there is still room for considerable confusion and misunderstanding unless the exact limits of authority and responsibility of each member in it are clearly defined. The lines of demarkation between the limits of authority of the various officers is more or less hazy on some roads, resulting in friction and frequent misunderstandings. On other roads, because of tradition, or due to the personalities of the men who may have been among its officers, the lines of demarkation are often more or less irregular and differ greatly from those on roads where the conditions are better balanced. In these days when a road like the Canadian Pacific, for instance, finds that it is profitable to clearly define in the form of standard practice cards the exact procedure to be followed in performing minor operations in the mechanical department, it seems strange that railways will allow the efficiency of the entire organization to suffer because the limits of authority of its officers are indefinite and have not been reduced in writing to clear, clean-cut statements. Can the general officer who is responsible for this uncertainty afford to excuse himself on the plea of having other duties to perform which prevent his giving it the required amount of attention?

In commenting on "The Human Element in Industrial Management" in our issue of July 25, the statement was made that the problem of industrial efficiency will have to be solved by the development of a sufficient number of strong executives who understand how to train and handle men and to take advantage of the best things in science and practice to secure the maximum of efficiency with the minimum of effort. Are these men being developed as fast as they should be on our railways, and is the form of organization which obtains on many roads such as will make it possible to develop these men? In the first place, something besides a haphazard, or hit-and-miss method must be used to select from the ranks those men who are to be developed into good foremen and executives. In the next place, the remuneration should be such as to attract and hold such men. For instance, cases are not at all unusual where trainmasters, foremen, shop superintendents, traveling engineers and master mechanics receive less compensation than do some of the men who are working under them on a trip or piece work basis and whose responsibilities are not nearly so great. Is it to be wondered at that so many promising young men leave the railways for more lucrative positions in the industrial field?

A bright and ambitious young man, anxious to enter railway service, approached an older friend who was thoroughly familiar with railway and industrial conditions and asked him for advice. The older man replied, "I would advise you not to do so unless you want to get a few years of experience, but that is all there is to it. Get your experience and then go where you can get paid for it." This is pretty strong advice and one of the most important improvements that should be brought about in railway organization is to overcome this condition.

Letters to the Editor.

SUGGESTIONS FOR MORE EFFICIENT ORGANIZATION.

Jerome, Ariz., July 29, 1913.

To the Editor of the Railway Age Gazette:

Your issue of July 11 contains extracts from the testimony of President C. S. Mellen of the N. Y. N. H. & H., before Coroner Phelan at Bridgeport, Conn., July 7. From these extracts it would appear that the duties of the vice-presidents of that road were not specifically defined and it is fair to presume that a like condition of affairs prevailed as regards the duties of other officials. Speaking of the duties of the vice-presidents, Mr. Mellen said, "In railroad circles there is a well defined line of demarkation in this respect, which is not specified in the notice (of appointment) or by any order of the president." I believe that that statement is absolutely true and that it is responsible for a very considerable part of the lack of efficiency and good management in the operation of our railroad systems.

The astonishing part of the testimony to me is that the duties of important officials are left to their judgment and experience. No two men have the same judgment nor experience. All men are more or less selfish, and most men are vastly ambitious. From close observation, covering many years' experience I am led to believe that the petty jealousies, apparently inherent in most subordinate officers, are not necessarily confined alone to such officials and that the higher one gets in the management of a railroad the more detrimental to efficiency become efforts of such officials to secure all possible power and authority, outside of what properly belongs to their respective positions.

While the lines of demarkation are fairly well marked there are many places of apparently overlapping authority; the authority of officials is often not sufficiently defined for them to determine just where this line may be and there are consequently many clashes, which greatly redound to the detriment of the service.

The official list on practically every railroad in the United States is made up of men secured from every part of the country. On practically no two roads are the lines drawn exactly alike and men come together from different roads with divergent ideas of their authority. Where one character is particularly strong, assertive, ambitious or unscrupulous, he will often gradually encroach upon the authority of others, until the custom grows up on that line for him to exercise authority never intended for his position. This is often conducive to internal dissensions, which make for lax discipline and poor efficiency. The men instinctively take up the feeling held by their respective heads and the ugly spectacle is often seen of entire departments being at loggerheads with one another. It is also often the case that these conditions do not come to the attention of the higher officials, or, if they do, are made light of and not given the attention which their importance deserves. In many cases the authority is a divided one up to the very head, who lives in such a mass of responsibility, who has such vast properties under his control, as to make it practically impossible for him to attend to such an apparently small matter, and, as a result, this unhealthy condition grows continually worse and brings in its wake much that is condemned in railroad management.

What official, on a vacation trip over other roads, cannot see acts of gross inefficiency or carelessness and does not determine that such things shall be remedied on his own line when he returns? How often, however good his intentions may be, is he so plunged into other distracting work or so hedged about with conflicting authority on his return as to render any improvement practically impossible.

I have come to the conclusion that the best remedy for these conditions is to more clearly define the authority of all officials and to limit the units of operation so as to make it possible for

unit heads to more closely supervise such units. The tendency of latter day railroading is to increase rather than diminish the divisions; to increase the scope of the higher officials until they sometimes not only exercise authority over vast mileage on one line, but often hold similar positions on two or more lines. In the very nature of things, it becomes impossible for men occupying such positions to give more than cursory attention to many important matters. In support of this I might again call attention to Mr. Mellen's testimony, as well as to many other changes in management of late date.

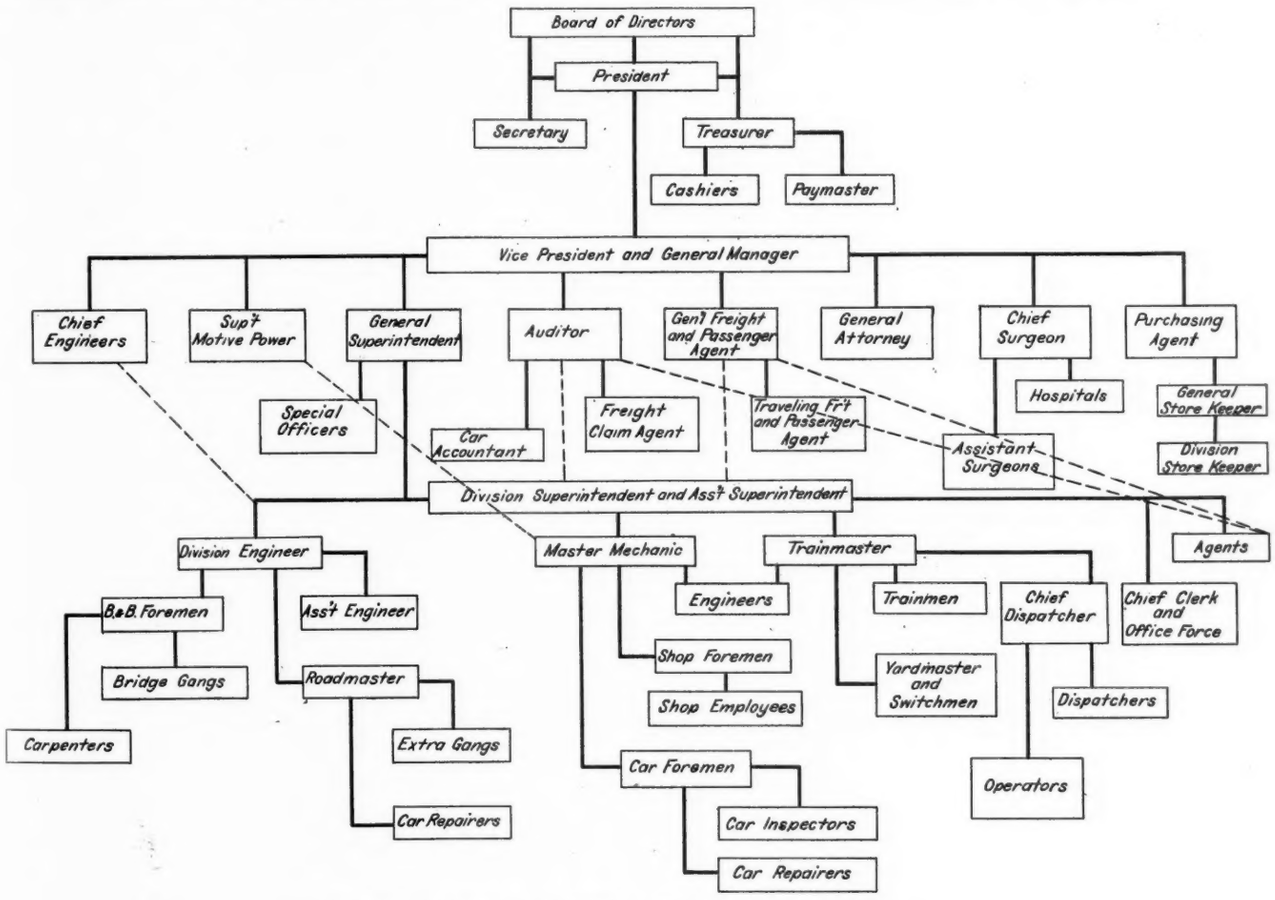
In making more definite the lines of demarkation, I believe that every road should be charted, and in addition thereto the duties of every official should in a measure be defined—amplified by explanatory notes. Conferences should be held periodically, these matters taken up, discussed dispassionately and any doubts dispelled by decisions from competent authority. In this way each department head will understand just exactly the lines of demarkation of his authority, and also those of each other official. In charting I would suggest, for any but the largest railroad systems, something similar to drawing. On larger systems, where more vice-presidents are employed, the diagram may be very easily changed to suit conditions.

It will be noted on the chart herewith, that the division superintendent is made the absolute unit head, all division officials reporting directly to him or to the assistant superintendent, as may be determined. This does not preclude the chief engineer from securing information, etc., from the division engineer, but it should be done through the division superintendent. The same process applies as regards the mechanical department. Where it is not considered expedient to employ a chief engineer or superintendent of motive power, their duties may be assumed by the general manager or by the general superintendent. The division superintendent should report directly to the general superintendent and indirectly to the chief engineer, superintendent of motive power, auditor, and other general officials.

I would have, where practicable, all division officials grouped in one consolidated office, separated into departments, but with a common head. This is a modification of the Hine system and is, I believe, an improvement over that excellent system.

After all is said and done, however, the unit which is successfully operated is so operated largely because of the personal equation of the unit head. Where the department head knows the exact limits of his responsibility, has decision and commonsense and can infuse into his subordinates an exemplary spirit of co-operation and loyalty the unit will be efficiently and successfully run, but where the unit head does not have these faculties, lost motion and inefficiency is certain to prevail. A clear understanding of the duties and authority pertaining to any position, and of just what is expected of a department head should, however, add immensely to the efficiency of any official and greatly redound to the successful management of the railroad affected.

N. E. BAILEY,
Gen. Supt., United Verde & Pacific Railway.



A Suggested Form of Efficient Organization for a Railway.

DUTY FREE COAL FOR RUSSIAN RAILWAYS.—The Duma in St. Petersburg has adopted the bills relating to the import free of duty of coal from abroad for the use of the state and private railways.

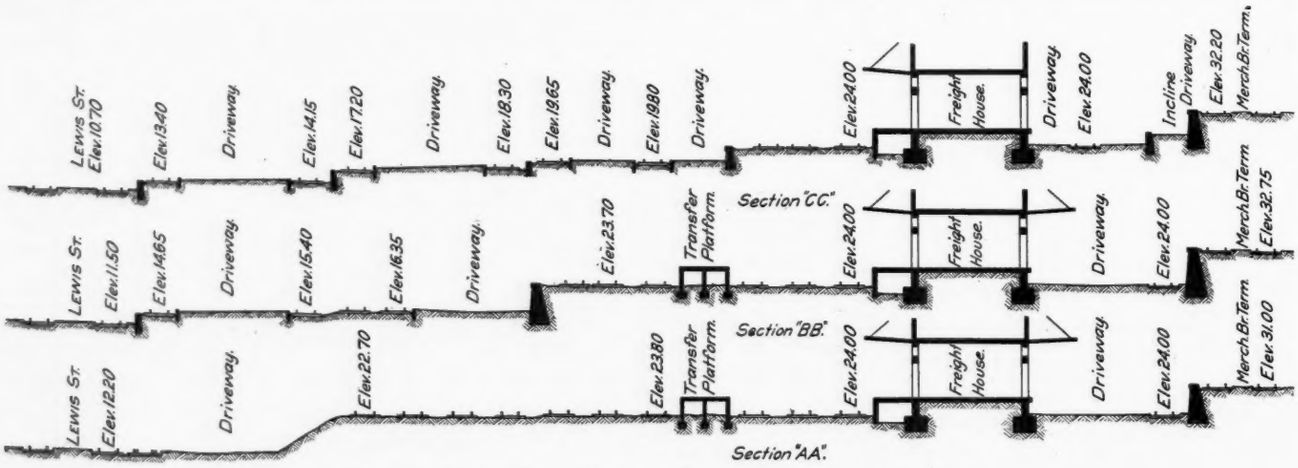
RAILWAY CONSTRUCTION IN INDIA.—On December 31, 1912, there were 2,455 miles of line authorized or under construction in India. This figure comprises 1,092 miles of 5 ft. 6 in. gage; 536 miles of 3 ft. 3 in. gage; 823 miles of 2 ft. 6 in. gage, and 4 miles of 2 ft. gage.

"COTTON BELT" FREIGHT TERMINAL AT ST. LOUIS.

Occupies Three City Blocks and Is Five Stories High.
Building Narrow to Facilitate Trucking to and From Cars.

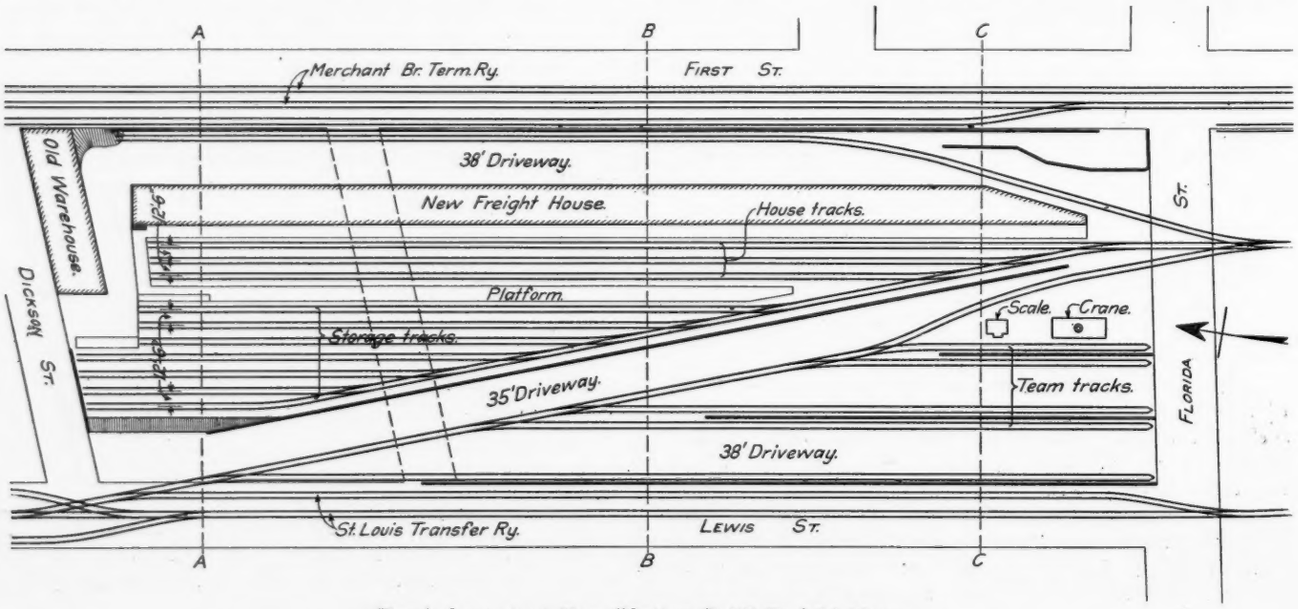
By Winters Haydock,
Resident Engineer, St. Louis Southwestern, St. Louis, Mo.

The increase in the volume of freight handled at St. Louis by the St. Louis Southwestern, due to its expansion in Arkansas and Texas and to the recent development of these states, has necessitated the building of a large new freight terminal to replace the old and inadequate facilities. Several extensions to the company's lines have recently been built into new territory in Arkansas and Texas, and with every prospect of as great a future ratio of development in the old territory as in the past, it was the part of wisdom to make the new terminal ample for a large increase over present business, and to spare no expense in making it up-to-date and economical of operation.



Sections Across Tracks at New "Cotton Belt" Freight House.

at great expense, it was necessary in designing the yards to plan for a connection with the tracks both on First and on Lewis street. This involved a serious difficulty in design on account of the difference in elevation of these tracks and the steep slope of the property. The adopted arrangement provides a maximum of convenience of operation with a minimum waste of space, without requiring steep grades.



Track Layout at New "Cotton Belt" Freight House.

The new terminal occupies three city blocks between First and Lewis streets and Florida and Dickson streets. It is about 874 ft. long and 274 ft. wide. The main line tracks of the Terminal Railway Association leading from the Merchants bridge are on First street, west of the property, and the tracks of the St. Louis Transfer Railway, which is a part of the Terminal, are on Lewis street to the east. Lewis street is about 20 ft. lower than First street, and Florida and Dickson streets at the north and south ends of the property respectively, slope down from First to Lewis street on a grade of seven per cent. For the fullest utilization of the property, which had been bought

The principal features of the terminal are briefly: a freight house 751 ft. long, 30 ft. wide and five stories high; a yard of 10 tracks to serve the freight house and for the storage of cars;

a transfer platform 500 ft. long; and a team track yard of five tracks. The difficulty of getting tracks into all four corners of a comparatively small rectangular area was overcome by running two ladder tracks diagonally through the property, from one of which the house and storage tracks lead toward the south and from the other of which the team tracks lead toward the north. Between these two tracks is a driveway diagonally from Florida

New "Cotton Belt" Freight House from West Side.

street to Dickson street and a connection with the ends of the driveways between the team tracks. In the team track yard the elevations of the tracks and driveways conform in general to the seven per cent. slope, the various levels being divided by small retaining walls. The driveways of the team yard are paved with granite blocks and have concrete curbs. Features of the team track yard are a wagon scale and a crane of 25 tons capacity mounted in the middle of a concrete platform.

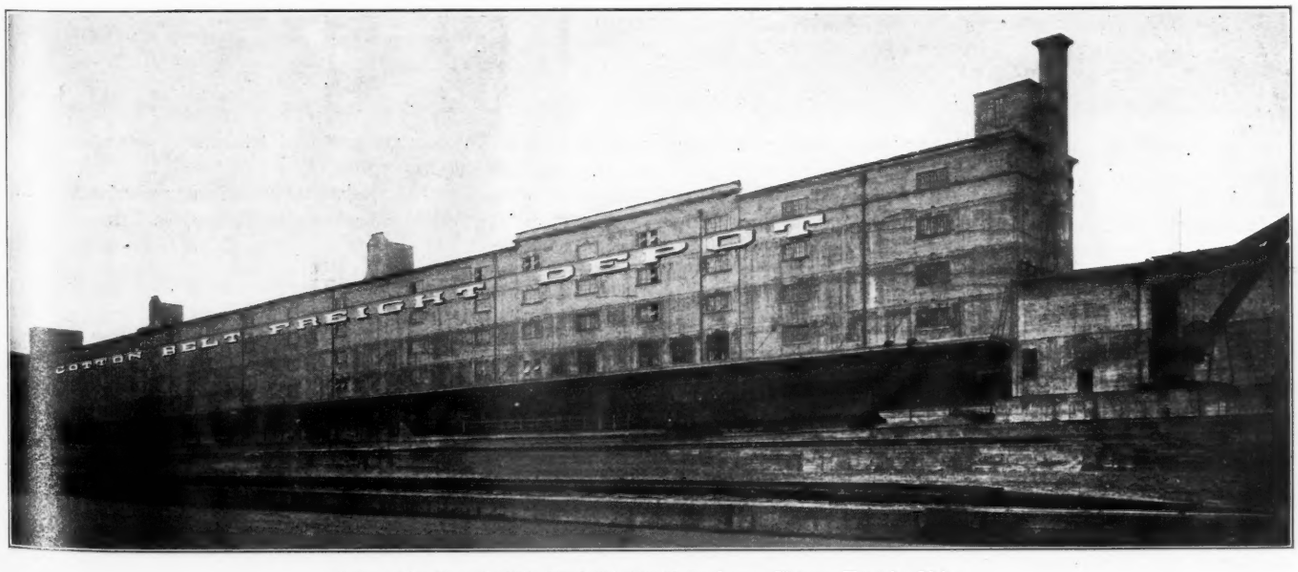
The design of the freight house was adopted in the belief that, though various systems of handling freight have been tried, such as telpherage systems, hoists, etc., nothing can surpass for economy the simple plan of trucking freight to and from the cars through a narrow building. Hence the building was made long for capacity and narrow for economy. It is 751 ft. long, 30 ft. wide and has a platform on the track side 10 ft. wide. On the west side is a driveway paved with brick. Steel rolling doors are provided on each side of the building and a 12-ft. concrete canopy is provided on each side. At short intervals along the middle of the building platform scales are set in the floor.

The building is five stories high and fireproof throughout, being of steel frame construction with concrete fireproofing around the columns and beams and reinforced concrete walls, floors and roof slabs. The floors are designed for a load of 500 lbs. per sq. ft., the panels between beam centers being 13 ft. 6 in. The four upper stories are intended for warehouse purposes and are served by four electric elevators. This extension of the plan to include a large warehouse area without using any more ground space was warranted by the permanent demand which exists for such space in St. Louis and by the additional freight business which such a warehouse connection would naturally bring. Each floor is divided into compartments about 100 ft. long by division walls having openings 12 ft. wide, provided with rolling steel doors with automatic fire latch. The entire building is protected by an automatic sprinkler system.

Near the north end of the building on the first floor is a large and well finished office for the bill clerks and cashier, and above this on the second floor is a larger office for the freight agent and his clerical force. On the first and second floors are seven toilet rooms. These and the offices are heated by steam from a boiler located in the cellar in the north end of the building. The vacuum system is used. One compartment on the third floor is also heated—this to be used as a storeroom for fruit.

A refrigerator room is provided on the second floor of the two-story building above the boiler cellar at the north end. The walls, floors and roof of this room are insulated with 3-in. cork slabs. Refrigeration through ammonia pipes is provided by the St. Louis Cold Storage and Refrigeration Company. This room is served by a special elevator.

In order to provide for the transferring of freight from car to car a reinforced concrete platform about 500 ft. long and 12 ft. 6 in. wide has been built between the third and fourth tracks east of the freight house. This is connected with the building by a cross platform at the south end. A convenient feature is a concrete end loading incline at the end of one of



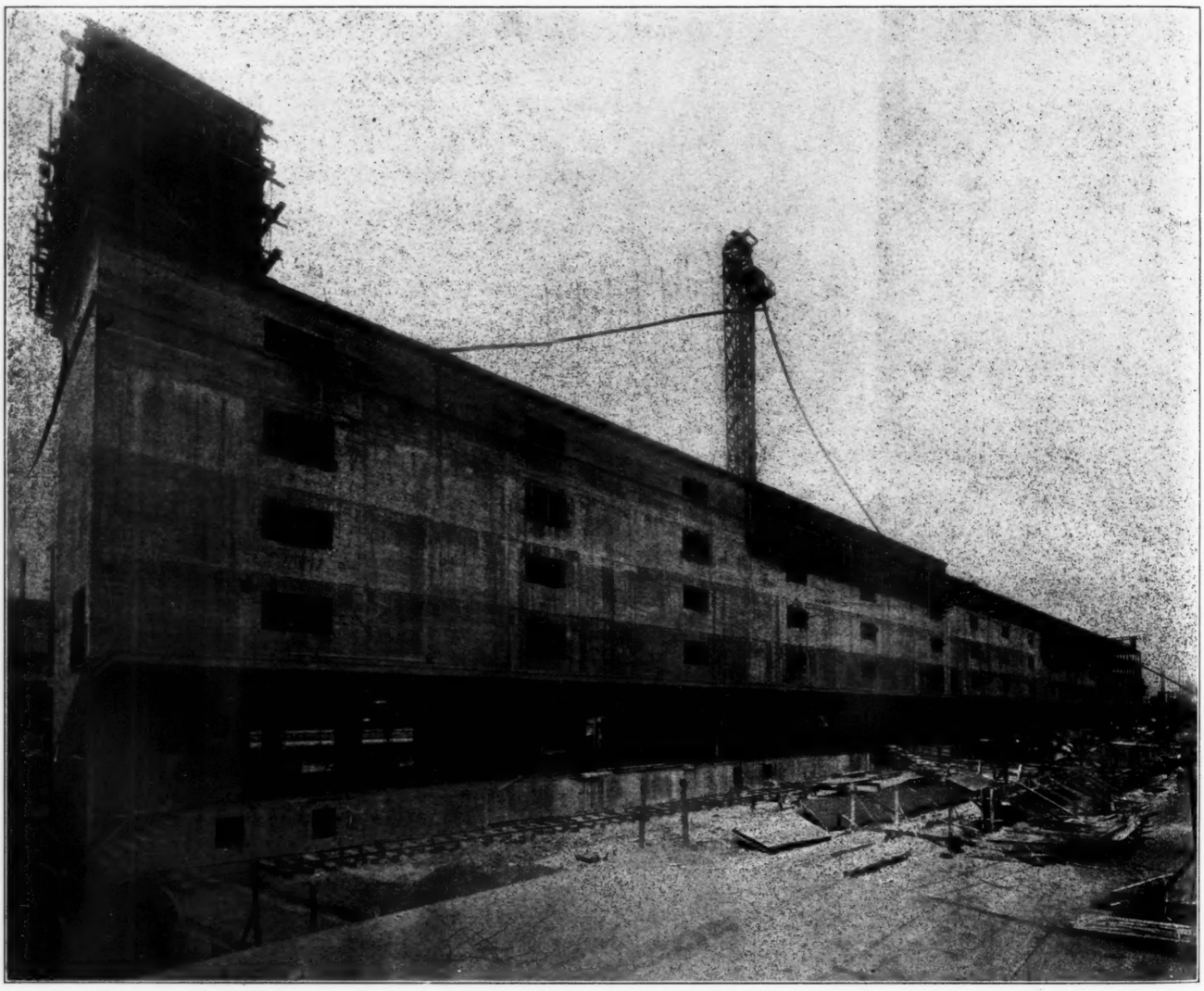
New "Cotton Belt" Freight Station from Team Track Side.

the tracks, providing an ever ready means of loading traction engines, threshing machines, boilers, fire trucks, automobiles, etc.

The work of tearing down the old buildings of the Charter Oak Stove Company, from whom the real estate was bought, was begun in September, 1911. Wrecking and grading were carried on during the fall. The severity of the winter prevented the accomplishment of much, except the erection of the steel frame. The tower and chute system was used in concreting in conjunction with hopper cars for the long hauls. About 15,000 cu. yds. of concrete were used in the entire construction. The long and narrow form of the building lent itself admirably to economy in form-work. The outside wall forms were built in large panels 40 ft. 6 in. long and one story high. The beam, floor and inside wall forms were built in small panels light enough to be handled by two men. The concrete was poured in sections including about one-quarter of one story. While one of these sections was being concreted another was being erected by the carpenters; the form panels were moved from section to section and thus used over and over. The large outside panels were moved along the building and from story to story by a wooden traveler, which ran on rails temporarily placed on the steel roof beams. They were suspended from the traveler by multiplying chain hoists.

Architecturally the building is as pleasing in appearance as its massive design and utilitarian purpose warrant. The usually flat appearance of a concrete surface is relieved by verde-green terra cotta lion heads at the ends of the canopy rods, terra cotta shields at the corners and a large terra cotta sign, all in verde-green.

The terminal was designed and built under the direction of C. D. Purdon, chief engineer, O. D. Schmidt, chief draftsman, bridge and building department, being the architect for the building. Thompson & Scott were the general contractors. The steel frame was fabricated and erected by Christopher & Simpson. The plumbing and heating system was installed by the Wm. Burke Plumbing Company and the sprinkler system by the Globe Automatic Sprinkler Company. Ed. Samen was superintendent for the contractors and the writer was resident engineer. The terminal was opened for business on January 1, 1913.



South End of New Freight Station During Construction, Showing Forms and Concrete Distributing Tower.

ROLLING STOCK FOR INDIA.—There are to be built for the Great Indian Peninsula Railway 202 passenger cars, 1,386 freight cars and 112 engines. Provision has also been made for the construction of 500 box cars for the Bombay, Baroda & Central India, and 400 box cars for the East Indian Railway during 1913-14.

INDIAN RAILWAY CONCESSIONS.—A concession has been granted to the District Board of Tanjore for the construction, without rebate or guarantee, of extensions of the Tanjore District Board railway from Nidamangalam to Mannargudi (Madras) about 8 miles, and Tiruturaipundi to Vedaraniem (Madras), about 20 miles in length. The two extensions will be on the 3 ft. 3⅜ in. gage.

ARE YOU WATCHING THE COAL PILE?

A Series of Questions and Suggestions Emphasizing the Necessity of Giving Detail Attention to the Fuel Problem.

By D. C. Buell,
Chief, Railway Educational Bureau, Omaha, Neb.

Do you realize that on a medium-sized division the average cost for coal per day runs around $2,000? If you will check it up on your division, and it is of average size, you will find this is not far wrong. With this in mind, let me ask the question as to how much time you are spending per month in looking after fuel matters. If you are a division superintendent or master mechanic, I will hazard the guess that there is not a week that you don't spend several hours "chasing overtime," and yet, probably, on your division overtime will not average much over $1,000 a month; whereas, fuel costs will perhaps average $60,000 a month. Under these circumstances are you giving sixty times the attention to your fuel costs that you are to your overtime costs? You ought to, on a basis of comparative statistics.

AT THE COAL CHUTE.

Do you think to talk to the coal-chute foreman about how much coal is picked up off the ground each month, and what is done with it? Everything may be cleaned up around the chute, but this is no indication that an excessive amount of high class coal is not being spilled, picked up and shipped away for use at pumping stations. It is also well to find out if the pick-up coal is being properly credited or charged in the records.

While talking to the coal-chute foreman, do you find out how much "pencil adjustment" has to be made each month to balance the coal accounts at his chute? If there is such a pencil adjustment, do you investigate the matter with the station agent who handles the bills, and others concerned, to find out where the leakage occurs, and why there should have to be any more than a nominal adjustment?

Do you have statistics in your pocket so you know, when at a coaling station, what the cost of handling the coal is at that point? There are many ways to reduce the cost of handling coal at coaling stations which are not being carefully considered. There are many places, particularly at terminal points, where the distribution of labor is such that statistics show an excessively high, or perhaps an unusually low, cost of handling fuel, whereas if labor charges were properly proportioned such would not be the case. If it is costing more than three cents a ton to coal engines at mechanical plants, or more than seven cents a ton at pocket chutes, or over ten cents a ton at any point, it is a pretty good indication that there is a possibility of making a saving on this item if some little study is given the situation. At many small coaling stations, particularly of the older type, the work can in some cases be let out by contract at much less than the present cost.

Have you ever stopped to figure out what the cost of handling coal on your railroad is? You can figure this approximately by taking the average cost of handling per ton as nine or ten cents, and multiplying the total number of tons used by locomotives by that amount. The answer to this simple problem will surprise you.

Do you watch the operation of mechanical chutes to see whether some engines are getting all lump coal and some engines all slack? Slight modification of a chute at times will overcome this difficulty and result in considerable fuel economy on the road.

Does the coal-chute foreman understand that with run-of-mine coal there is often a considerable amount of slack along the side of the car that stood next to the tipple at the mine? If the coal-chute man understands this, he is probably making an effort to mix this fine stuff with the coarser coal. There are lots of other little items of interest around a coal chute that a man with his eyes open will see. For instance: Will a stretch of 200 or 300 ft. of fence prevent the stealing of a lot of coal that is going on at present?

Is the coal being broken up to firing size at the chute so as to keep faith in the contract which you have made with the fireman?

Are coal-chute men giving certain engineers or firemen the worst coal or the best coal on account of personal dislike or preference?

Are the handling arrangements for the fireman proper and safe, so as to avoid risk of personal injury in taking coal?

Are the chutes provided with derails, and are they kept set to prevent possible accident?

Are the records being kept properly?

Are there any old company coal waybills stuck away in a corner that should have been sent to the auditor's office many months ago?

Is the foreman "on the job," so that engineers don't have trouble (particularly on passenger trains) locating the proper pocket to spot at?

Do you find out if the coal is coming to the chute in the right kind of cars? There probably is not a road in the country that does not have trouble in getting the right kind of cars to the proper plants. Hopper bottom cars go to a plant where there are no facilities for dumping through the hopper; and flat bottoms go to the plants where the hopper cars should have gone. It is hard to keep this straight, but it is not impossible if you keep after it, and lots of money can be saved this way, even on a medium-sized railroad.

Is coal being switched to the chute so that it can be handled with the minimum force?

These are just a few of the things. If your eyes are open the coal chute presents lots of problems in fuel economy, but if they are not open, it is just a coal chute, and ten chances to one a lot of money is going to waste unnoticed.

AT THE STATION.

At coaling stations it is just as important to talk to the station agent as it is to talk to the coal-chute foreman. Do you find out how the company coal is coming, whether the billing is being handled properly, so that there can be an accurate record of the coal handled through the chute, not only at the station and in the division offices, but in the accounting office?

Do you ask the agent if the coal-chute foreman co-operates with him properly in returning company coal waybills, if they are handled jointly as in most cases?

Do you talk with him about the pilfering of coal, to see if this cannot be reduced? The confiscation of commercial coal is another important item.

Do you ever explain to an agent that it saves coal as well as time and money if his force is lined up so as to cause the least possible delay to passenger and freight trains? Perhaps he has never thought that a minute wasted at his station must be made up between stations and that it takes extra coal to do this. While talking about this, don't forget the importance of a first-class switch list.

While standing at a station, if you see an engine coming in making a cloud of black smoke, do you say anything to the crew about this being unnecessary?

If you are standing around a station and hear an engine popping off unnecessarily, do you ask the crew if they realize the waste?

These last two questions may seem somewhat foolish, but

one of the surprising features of the moving picture car work in connection with fuel economy was that if an engine was making black smoke anywhere around a terminal, or if an engine was popping off, there was some engineer, fireman, trainman or other employee who had seen the moving pictures who would stroll over to that engine and look up and holler: "Say, partner, haven't you been to that picture car yet?" This very thing made quite a difference in the amount of smoke and popping. How much more effective it would be if the superintendent, trainmaster, or road foreman did this instead of depending on the men to check each other up at a terminal!

AT THE CINDER PIT.

Do you ever get up on the string of engines waiting to be cleaned at the cinder pit, and examine the condition of the fires in these engines, to find out which crews are burning their fires down properly so as to avoid waste of coal, and which crews are careless about the matter, so that you can check this important item to prevent this waste? At the same time, do you pay attention as to which fires are clinkered and heavy and which are clean and light? This may make a difference of from half an hour to a couple of hours in the cleaning of the fire, and when you are at all short of power the condition in which fires are brought into the terminal plays an important part in the speed with which engines can be turned and made ready for service. There is another important item in this connection, and that is that if the men on your district are all bringing in light, clean fires, the cost of cleaning fires and turning engines can be materially reduced from what it is if the fires are in bad condition and clinkered. Inspection of the engines at the cinder pit gives you a mighty good line on which fireman to ride with and instruct in order to make a better fuel showing.

While you are around the ash-pit, do you watch the use of the blower to see what flues are not being mistreated?

Another thing that it is important to watch on the cinder-pit track is the way the water-tender does his work. If engines are popping off on this track continually, it is a pretty safe bet that before long you will see the water-tender getting up on some of these engines and putting more water in the boiler, and at the same time throwing more coal on the fire. There should be no excuse for engines popping on the cinder-pit track while waiting to have their fires cleaned.

AT THE ROUNDHOUSE.

Do you ever make a surprise test on the work done by the roundhouse men that affects fuel economy? For example: Have you ever gone into the firebox of a locomotive on which the work book shows "blow out flues," and the flue borer has marked the work "OK," and made a test with a torch to see how many of the flues have actually been blown out? If you have never done this you have a surprise in store for yourself.

Have you ever talked to the master mechanic about the particular importance of having flues kept clean on superheater engines? You must have noticed, if your eyes are open, that dirty flues on the superheater make an enormous difference in the steaming capacity of the engine and the amount of fuel it burns.

Do you check up occasionally to see if boilers are being washed out often enough, and that the work is being properly done?

Do you ever check up engines that are ready to go out to see that the cinder hopper slides have been properly put in place, that the front door has been bolted tight, and that the spark cleaning hole cap is firmly seated? You know, of course, how seriously the leaking of air into the front end affects the steaming of an engine, and, in addition, that air-leaks in the front end are liable to produce a burned and warped smokebox.

Do you ever study the problem of building fires in locomotives, not only from the viewpoint of seeing that there is a fire started that is in fit condition, so that the fireman can build it up ready for the run, but, in addition from the standpoint of the cost of firing up engines, which is an important item, and can be cut down half at many points by improved methods?

Do you watch the way engines are coaled at the terminal, to see that the tanks are not filled too full and coal wasted thereby?

Do you examine the coal books on the engine from time to time? There are lots of cases where the coal book shows 23 or 24 tons of coal on a tank that can't possibly hold more than 15 or 16 tons. That is a thing that spoils the value of the performance sheets.

Do you ever stop and study the method of taking care of firing tools so that the fireman can have his own shovel and other tools? You know, of course, that any man can do cleaner, better work with the tool that he likes and that fits his hand than he can with a tool that does not suit him. There is economy in it from the store department standpoint, too,

Do you ever look over the engines at the roundhouse to see whether the decks are in proper condition, so the fireman can do good work? Sometimes there are strips of iron that stand up above the deck right where the fireman would naturally rest his foot. Sometimes there are bad places in the tank deck that catch a man's shovel and prevent him firing regularly. While you are looking at this, why not examine the doors to see if they latch properly, to see that they are properly equipped with chains, so that they can be swung shut easily between fires; or in the case of an automatic door-opener, that it is properly adjusted, and the pedal in a convenient position? All of these are things which make considerable difference in the amount of coal burned. I can remember trips, when I was firing, when I burned half a ton or more of coal too much, because the fire door would not latch open, and I could not fire the engine with any success going around curves nor very regularly on straight track. Poor door catches cost the railroad lots of money in coal wasted.

While you are up on the deck of the engine, do you look particularly to see whether the sheeting over the shaker levers is arranged so that there won't be a continual waste of coal through the holes at this point? If you haven't thought of this before, ride on one of these engines sometime, and you will be surprised to see how much coal will drop down through these holes and be wasted during the trip.

There are lots of other things to be seen around a roundhouse that time does not permit mentioning. Then, too, there are other things, such as getting engines properly drafted, testing for steam-pipe leaks, etc., that require more than ordinary inspection to locate and adjust.

ON THE ROAD.

When you are riding on the train do you take note of the smoke that is trailing back, or of the absence of such smoke, and commend the crew for good work at the end of the run? If the work was not good do you let them know that you noticed their poor work? Many times while you are riding back in the train you can hear the engine popping, and thus tell whether coal is being wasted in this manner. If you are riding on the engine there are many things to watch. You, of course, see how the fireman fires, what his method is, if he is getting the coal to burn, whether he is closing the door between each scoopful fired, whether he is slugging the engine, or firing light and even as he should, and, in fact, all of the different features of his work. If it is part of your duty, you will, of course, instruct, suggest or commend as the case may be.

There are other important features, however. Do you notice the location of the steam gage to see whether the fireman can see it easily? A badly located steam gage means coal wasted every trip. The same thing holds true to a less extent regarding the location of the water glass. You have undoubtedly watched the method of handling the injector, and you instruct, suggest or commend regarding this feature of the work, but are you sure that the engineer is co-operating with the fireman and the fireman with the engineer about steam and water, so that they understand each other's methods, and work together?

Do you watch to see if the fireman is using great big heaping scoopfuls of coal? If he is, you can suggest not filling the scoop so full, and he can probably do his work easier, and save considerable fuel.

Have you watched to see if he tears his fire all up with a rake? You might be able to convince him that he could get along much better if he fired more carefully and overcame the necessity of doing this raking. In a similar manner there is probably a whole lot of information you could give the fireman about shaking the grates, that would be of value to him and that would save considerable coal.

If the engine is popping, do you call attention to the unnecessary waste this is causing?

If a lot of black smoke is being made do you suggest improved methods that would overcome this bad feature?

When the engine is coming into a town where water or coal is to be taken, and the fireman puts in a "slug" to hold the fire while this is being done, thus smoking up the town, do you suggest to him that if he lined up the sides and corners and left a bright fire in the middle of the firebox he would avoid making all that smoke, and serve his purpose just as well?

Do you watch to see how the engineer handles the reverse lever and throttle, and do you watch to see whether the engineer gives the fireman warning *before* he is going to shut off, so as to save the last two or three scoopfuls of coal?

Are you giving the new fireman the amount of attention that he deserves? You know that if you let the new fireman watch some poor man he will learn poor methods and get into bad habits; whereas, if you can break in the new fireman yourself, or put him with a crew that you know will break him in properly, the new man will start out with proper ideas, and will give results accordingly. If you have watched this proposition of the new man you can't fail to realize the importance of the matter.

GENERAL.

Do you try to make your commendations somewhat publicly, that is in the hearing of other interested men, and your suggestions, and especially your first severe criticisms, as personal and confidential as possible?

If there is any tying up on the road, on account of the sixteen hour law, do you check up to see that the engine is being properly taken care of, and no coal wasted? In a similar manner are you in touch with the situation on helper engines, work train engines, steam shovels, pile drivers, etc.? Do you know where the steam shovel gets its coal? If it is getting it from the work-train engines, and proper account is not made of this fact, it interferes with your fuel showing. Then, too, a lot of coal may be wasted in helper service, work-train service, steam shovel or pile driver service, by firemen not properly banking their fires when the engines are not at work.

Do you ever drop off at pumping stations to see what kind of coal they are burning, what the conditions are at these points, and whether the coal is being used economically? At small expense the boiler plants at many pumping stations can be made to burn the poorest grade of fuel with a considerable saving in cost. This is a point well worth looking after. It should be remembered, however, that the plant must be *kept* in condition to successfully burn the cheap coal, or else the pumper will get lump coal from engine tanks to keep his boiler hot.

Do you know anything about the distribution of coal for heating purposes at telegraph offices, stations, switch shanties, section houses, outfit cars, etc.? In many cases coal is thrown off from road engines or switch engines to supply such points. This makes a charge against your locomotive performance that should not be necessary. Coal storage facilities at such points is another feature worth looking into, to prevent coal being wasted or stolen.

When you get a report of poor coal or find poor coal on engines, cars, or at coal chutes, do you follow the matter up to get the car numbers, and to check up so that you will know what mine the coal came from? If you do this, it is then an easy matter to find out whether the coal was inspected, and to line things up so that further trouble can be avoided, temporarily at least.

Are you in touch with the division accountant who makes up the fuel statistics for the division, and has to make the final pencil adjustments as between coal furnished the division and charged out? He is a good man to know, and to keep in close touch with. You can help him, too.

Have you ever made a check to find out if the estimate of coal on hand on the division at the close of the month is a real estimate or merely a wild guess?

Do you know, with any degree of accuracy, your average cost of coal per day? If not, why don't you arrange with the division accountant so that you can have this information?

AN UNUSUAL SIGNAL INSTALLATION.

The celebration at Gettysburg battlefield July 1, 2 and 3 was the occasion of an enterprise in signaling never before heard of—the installation of automatic block signals for 25 miles, and the removal of the signals after the celebration was over; a costly temporary arrangement, but one which was warranted by the magnitude of the traffic. The Federal Signal Company, which furnished the signals, sends us the following account of the work:

"The fiftieth anniversary of the Battle of Gettysburg was celebrated by a reunion of the veterans of the North and South, and there were about 100,000 visitors at Gettysburg. Of this number about 70 per cent., or 70,000, were transported over the Gettysburg & Harrisburg Railroad of the Philadelphia & Reading system, a single-track line 25 miles long. In order to handle this heavy traffic expeditiously and safely, it was decided to make a temporary installation of automatic block signals. The regular traffic is so light that permanent automatic block signals were not warranted; ordinarily there are never two passenger trains on this section at the same time, there being but eight trains a day, four in each direction. The signals are the

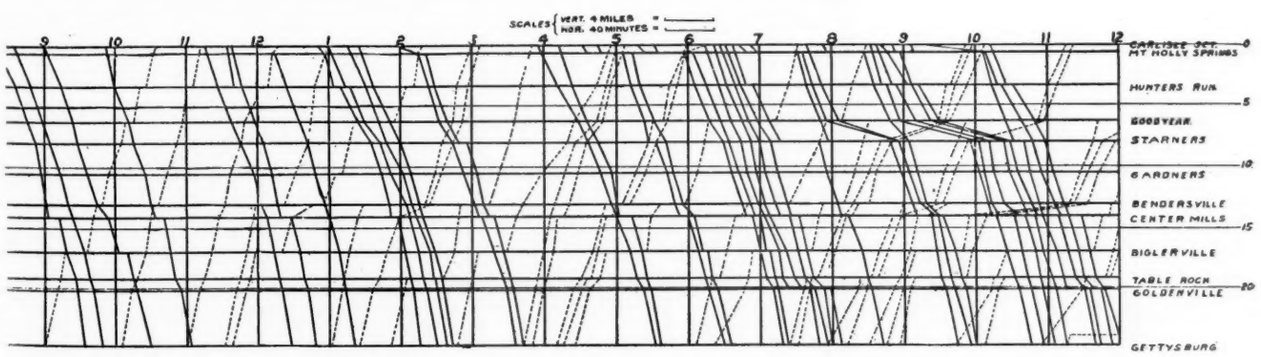


Fig. 2—Train Movements on the Gettysburg & Harrisburg Railroad June 30, 1913, from 9 a. m. to Midnight.

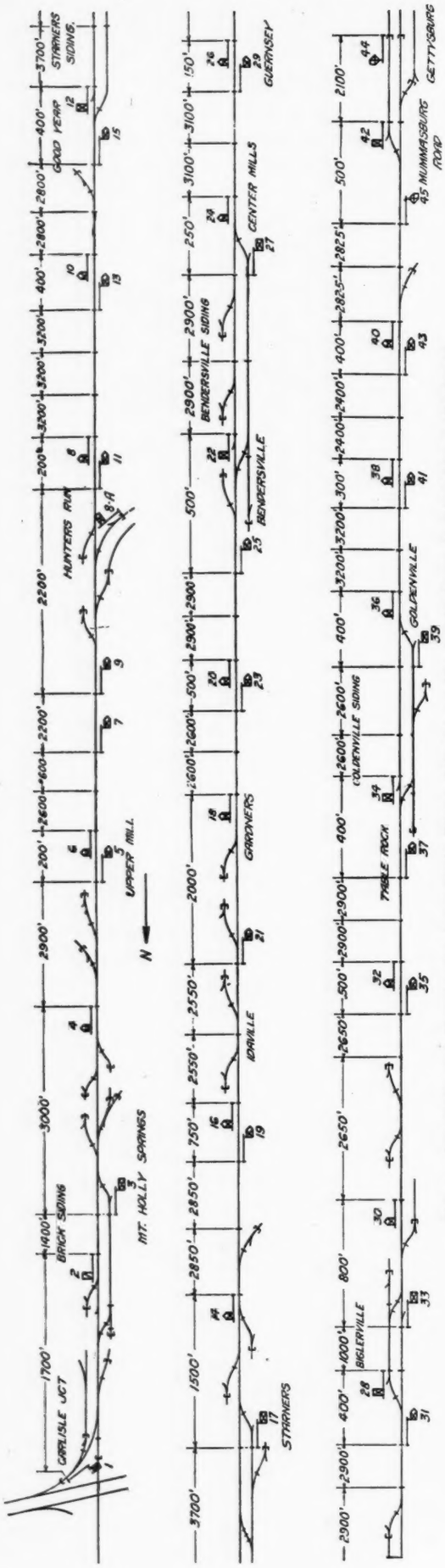


Fig. 1—Switches and Temporary Automatic Block Signals on the Gettysburg & Harrisburg Railroad.

same as the Federal company is installing on the New York, Chicago & St. Louis between Payne, Ohio, and Stoney Island, Ill.

"The contract for the installation of the signals on the Gettysburg & Harrisburg was let April 8, 1913. Work was started May 1, and the signals were put in service June 22. They were taken out of service July 7. The signals were located as shown in the diagram, Fig. 1, and were of the three-position upper-quadrant type arranged to stand normally clear for trains in one direction, the signals governing opposite movements over the same track standing in the stop position.

"The switches were operated by switch stands. Derails were provided at ends of double track, mechanically connected to the switches. The signals were supported on long ties made firm by blocking. The signal and track batteries were placed in wood boxes on top of the ground."

The rails were bonded in accordance with the R. S. A. standard, but duplicate wires were not used. The line wires used were iron, covered with weatherproof insulation, and supported on porcelain knobs fastened to the sides of temporary poles.

Most of the traffic was handled between the hours of noon and midnight; and the total volume is indicated by the following table:

TRAINS BETWEEN HARRISBURG AND GETTYSBURG, JUNE 29—JULY 6, 1913.

	Southward.		Northward.		Total.	
Date.	Number of trains.	Average cars per train.	Number of trains.	Average cars per train.	Number of trains.	Average cars per train.
June 29.....	23	9	24	9	47	9
June 30.....	36	10	29	10	65	10
July 1.....	16	8	21	5	37	7
July 2.....	14	9	13	10	27	9
July 3.....	14	8	12	10	26	9
July 4.....	28	10	22	10	50	10
July 5.....	18	9	19	11	37	10
July 6.....	1	6	7	11	8	8
Summary....	19	9	18	9	37	9

We show in Fig. 2 a part of the diagram showing train movements June 30, when the traffic was nearly all southward. Southbound trains are indicated by solid, and northbound by dotted lines. The scales are such that 4 miles vertical is equal to 40 minutes horizontal. The passing track switches are set for southbound movements, Carlisle Junction to Gettysburg, and the signals are in corresponding positions.

Officers of the road expressed themselves as well satisfied with the service of the signals.

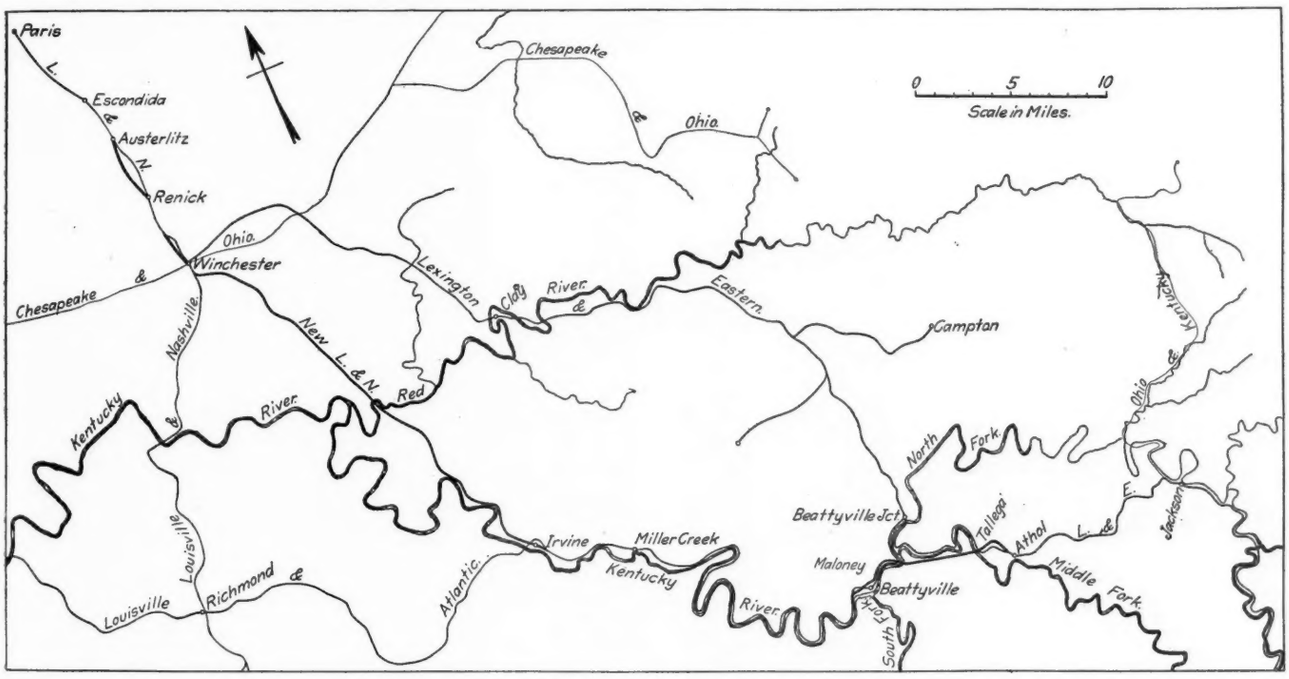
AUTOMATIC BRAKES IN INDIA.—During the calendar year 1912 350 engines, 697 passenger cars and 7,936 freight cars were fitted with automatic brakes, bringing the total number so fitted at the close of the year up to 6,063 engines, 18,159 passenger cars and 64,657 freight cars, as against 1,549 engines, 3,826 passenger cars and 92,004 freight cars not fitted.

CONGESTION OF TRAFFIC IN INDIA.—The special difficulty with which the Indian railways had to grapple during 1912, was the inability of the companies to deal promptly with all the traffic offered to them. The difficulty was especially acute in connection with the coal traffic. For the last six years the directors have been working on a policy of enlarging the capacity of the lines and increasing the rolling stock, and the very large increase in gross earnings and in tonnage carried in 1912 as compared with former years, indicates that the carrying capacity of the railways has been largely increased; but, at the same time, there is no doubt that for the time being trade in India has outstripped the transport facilities of the railways. Large orders for rolling stock have been placed and the program for additions to rolling stock during the present year is the largest in the history of Indian railways. Though the traffic carried during the cold weather of 1912 was even heavier than that of the corresponding period of the previous year, the congestion was far less acute and with a vigorous prosecution of the existing policy there are good grounds for belief that a marked and progressive improvement will be visible in each successive year.

EXTENSIVE IMPROVEMENTS ON THE L. & N.

Interesting Features of the Bridge, Tunnel and Grading Work Now Under Way Between Paris, Ky., and Jackson.

The very heavy and extensive work which the Louisville & Nashville has under way between Nashville and Birmingham was described in the *Railway Age Gazette* of July 25. This company has another distinct project, which also involves some very heavy work, between Paris, Ky., and Jackson. This work is being undertaken in continuation of the policy of improving the line from Cincinnati to the coal fields at the head of the Kentucky river, which has been under way for some time. A second track has been completed from Cincinnati to Paris (see *Railway Age Gazette* of June 16, 1911, for a description of the enlargement of the Covington tunnel, which was one of the interesting features of this double track work), and at present this is being continued to Winchester. The work of improving the line from Winchester to Jackson is being pushed at present in anticipation of an early increase in coal traffic, which will follow the development of large tracts of land recently secured by a large mining company in the district at the head of the Kentucky river.



Map of the Louisville & Nashville Lines Between Paris, Ky., and Jackson.

In addition to the double tracking between Paris and Winchester, the line is being revised and grades lowered. The Louisville & Nashville owns a line, the Lexington & Eastern, from Winchester to Jackson, but the location is not what was desired and it was decided to build from Winchester to Irvine, which is on the Louisville & Atlantic, also an L. & N. line, and to use that line from there to Maloney, following the Kentucky river. At that point the new line will cross the north fork of the Kentucky and follow the middle fork to Tallega where it will strike the present line of the L. & E. From there to Jackson the existing line will be used with necessary improvements. The grades on this line will be 0.3 per cent. northbound and 0.5 per cent. southbound, except between Winchester and Irvine where the grade is 0.4 per cent. As most of the traffic will be coal from the Jackson district to the northern markets, the former grades will be against the loads. The maximum curvature will be six degrees and the road bed standards will be 24 ft. in cuts and 18 ft. in fills.

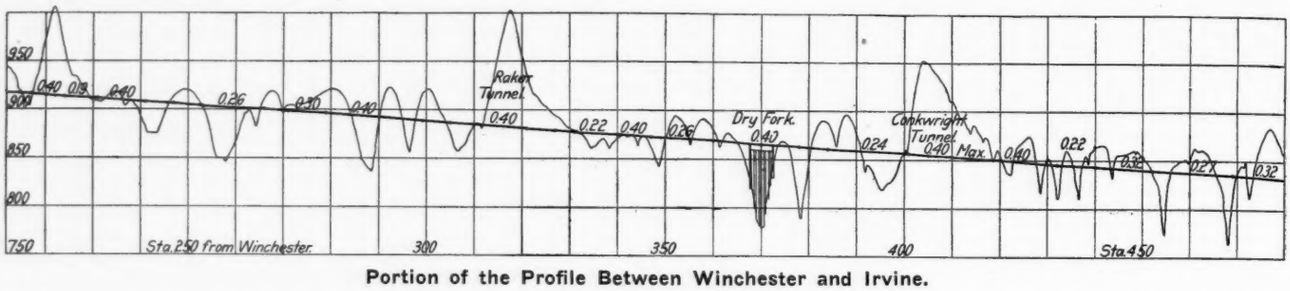
The old grade between Paris and Winchester was one per cent., so that the improvements on that section will make an important change in operating conditions. The revision work on this section involves some heavy grading and long hauls. The maximum departure from the old line is about one-half mile.

On the new line between Winchester and Irvine the earthwork is heavy for the entire distance. The line crosses the drainage almost all the way, paralleling the Kentucky river for a short distance before reaching Irvine, but crossing all the tributary streams. The line along the river is on a steep side hill and has occasioned a great deal of trouble on account of slides, the location being finally revised to throw the line further up the hill and reduce this trouble. A large percentage of the material on the northern end of this new line is rock, some of which is very hard blue slate. Deep cuts and fills are numerous and two or three contractors used cableways to very good advantage in making the deep fills. One contractor, having two short cuts about 60 ft. deep, had considerable trouble in making the first shovel cut on account of the steepness of the approaches. As all the material had to be used it was necessary to put in two or more switch-backs to get the work trains down to the dumping trestle. There are two tunnels near the north end of the new section, both in rock, one of which, however, requires timbering. It is planned to line both of these tunnels with concrete. The approach cut and heading of the Conkwright tunnel, which is the larger of the two, is shown on one of the photographs.

There are a number of important bridges on this line, the largest of which is across the Red river. This structure is 1,780 ft. long, consisting of a steel viaduct with 13 40-ft. tower girder spans, seven 60-ft. and eight 80-ft. intermediate girder spans, and one 200-ft. deck truss. The maximum elevation of base of rail above the top of the pedestals is about 155 ft. The footings are spread on hard clay under 12 bents and are carried down to rock in the other cases. There are four other viaducts on this line, one over Howards Creek, 1,235 ft. long; one over Dry Fork, 460 ft.; one over Calloway Creek, 420 ft. and one other

360 ft. long. Both of the abutments for the 360 ft. structure and one at Howards Creek are of reinforced concrete of the pier type, described in a former article on the Cumberland River bridge. (See *Railway Age Gazette*, July 25, 1913, p. 153.)

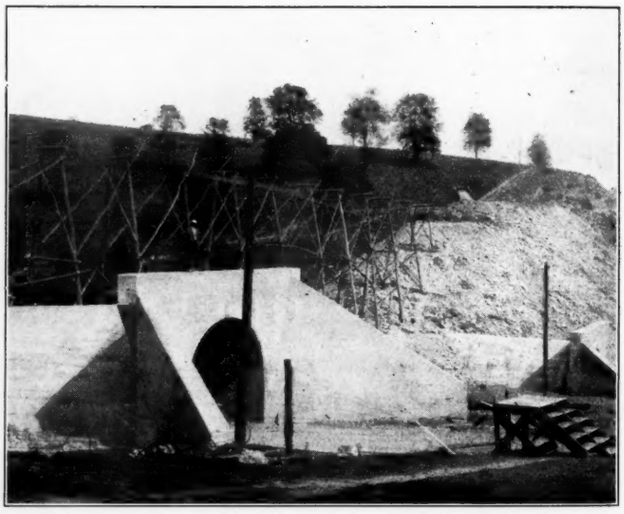
Soundings at the site of the viaduct over Calloway Creek showed a depth of 40 to 50 ft. to rock, the overlying material being very unsatisfactory for footings as the bed of the creek has been filled up by deposits during high water in the Kentucky river. The creek empties into the river only a short distance below the crossing of the new line and since the building of dams in the river the high waters have repeatedly backed up into these tributary streams, depositing large quantities of drift-wood, vegetable matter and silt. The final plans for the viaduct show a maximum elevation of base of rail above the top of the pedestal of 64 ft. 7 in. The pedestals under three bents are spread to 12 ft. square and are carried on nine reinforced concrete piles 14 in. square at the top and 12 in. square at the point, reaching to rock. The other footings are carried down to rock. The adoption of the viaduct for this location was also influenced by the fact that a road crossed the line near the creek which would have required a separate arch if an arch had been used for the creek, but which can now be carried under the viaduct without extra cost.



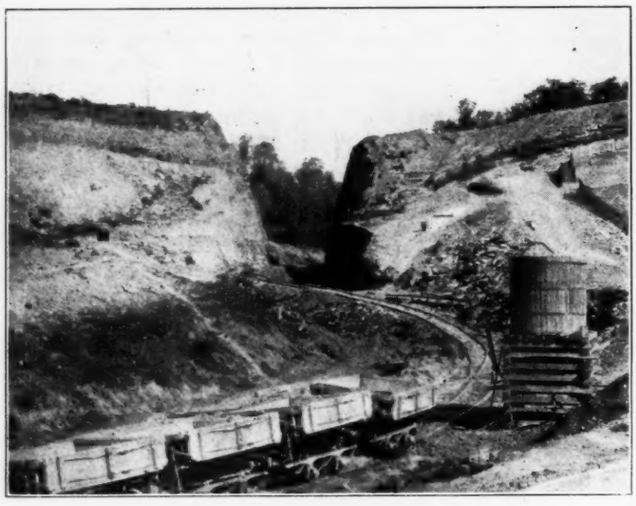
Portion of the Profile Between Winchester and Irvine.

Most of the small stream openings are concrete arches. The largest of these is at White Oak Creek where a 52-ft. arch is built. The footings are carried to rock, the footing below the springing line of the arch being about 8 ft. thick. The arch ring is not reinforced, being 6 ft. thick at the haunches and

Making a High Fill with a Cableway.



Typical Culvert Construction.



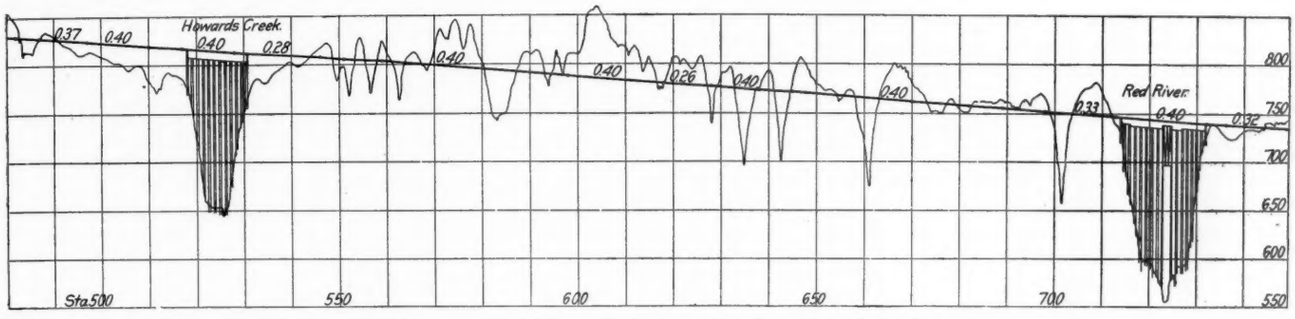
Opening Up a Deep Cut.

Contractor's Plant for White Oak Creek Arch.

3 ft. 6 in. at the crown. This ring was placed in 10-ft. sections which was as much as could be finished in a day's work. Spandrel walls are 9 in. thick and the wing walls 6 in. to 8 in. thick, heavily reinforced and braced by counterforts 8 ft. to 10 ft., center to center. Stone for concrete was secured from a quarry near the site, as was also possible in a number of other cases on this section. A very good grade of stone was secured in this way. Screenings and river sand were used for the fine aggregate. The plant for placing the White Oak Creek arch is shown in one of the photographs. In another is shown a 14-ft. and 16-ft. arch near the north end of the line, one carrying the arch and one the creek.

At Irvine a comparatively large yard is being built as a distributing and collecting yard to serve the mine district and to classify the loads for road trains. It will be a flat yard with provision for increasing the capacity as needed.

From Irvine to Maloney the revision work is light, consisting largely of eliminating curvature and raising the line in places to keep above high water. All of the old trestles, of which there were a large number, are being filled. To decrease the settling on these new fills, which has been very troublesome, the plan was adopted of covering the top of the fill with a layer of fine screenings, which has served to fill the crevices around the old piles and solidify the fill very satisfactorily. Crushed stone is being used for ballast on the revised line so that screenings are available at the crusher plant. The new roadbed is being laid with 90-lb. rail on oak ties.



Portion of the Profile Between Winchester and Irvine.

In two cases on this section unusual conditions were encountered in building concrete culverts. In one case it was found that the rock on which the culvert was designed to be founded ran out about under the middle of the culvert and as the masonry work was then holding up grading there was no time to change the design or relocate the structure. As no pile driver was available it was impossible to drive piles under the footing and after a number of plans had been discussed and discarded it was decided to drive 6-ft. well casings 12 ft. long, 8 ft. center to center, remove the material inside the casings with a well auger and fill them with concrete, thus forming concrete piles. The casings were driven by heavy blocks, pulled up by hand and all tools necessary were easily secured locally. In the other case a road crossed the line near a small stream and a double deck concrete box design was adopted which carries the stream in a waterway 6 ft. 6 in. x 12 ft. and the roadway overhead in an opening 12 ft. x 13 ft. The roadway opening is 58 ft. 6 in. shorter than the waterway, allowing room at both ends for the roadway to turn off of the floor of the box to an approach built alongside the stream. Wing walls are provided to keep the fill from encroaching on these highway approaches. The entire structure is heavily reinforced, as shown in the drawings.

Footings and Abutment for Dry Fork Viaduct.

North Heading of Conkwright Tunnel.

The material handled in the work between Irvine and Maloney is largely shale which disintegrates rapidly. In many cases a shelf of material resembling fireclay cropped out and in such cases slides almost invariably occurred. More than 50,000 yds. of material have been removed from slides on this section.

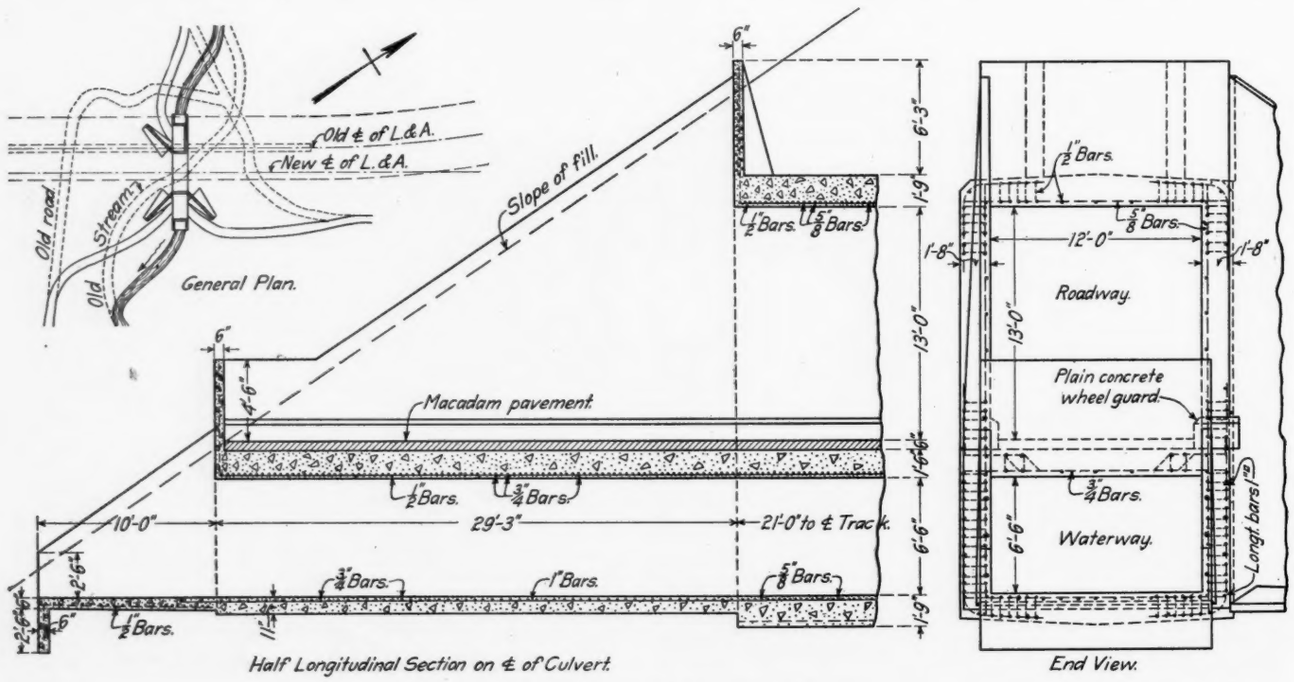
The new line leaves the L. & A. at Maloney, crossing the

north fork on a bridge consisting of one 250-ft. through truss, one 40-ft. and two 80-ft. deck plate girders. The new line to Tallega follows the middle fork, except at one point where the river makes a big bend and the line cuts through in a tunnel. Between Tallega and Athol the principal feature of the work is the construction of a new tunnel replacing one on the old line known as Mud tunnel. The old one was in a very soft material and caused endless trouble when it was driven, by caving, sliding and crushing the timbers. As the new grade is about 40 ft. below the old at this point the new tunnel strikes much better material, a large part of which is slate and no difficulty is expected.

In replacing an old deck truss bridge near Athol with a concrete arch the fill could not be carried above the lower chord for fear of weakening the truss and causing a failure. It was necessary to place temporary bents on the new fill while the bottom chord was removed and the fill completed.

The work from Athol to Jackson consists principally of improving the existing line by the application of stone ballast and heavier rails and is being handled entirely by company forces.

This work is being handled under a special construction department, which, as mentioned in the former article, has been organized under the direction of John Howe Peyton, assistant to the president and chief engineer of construction. H. G. Laird is in charge of the work between DeCoursey, Ky., and Winchester, and Ewing D. Sloan is in charge of the work between Winchester and Jackson. The work was let in nine general contracts. We are indebted both to the engineers and contractors connected with the work for courtesies extended in securing the above information.



Details of Double Deck Concrete Culvert.

SAFETY EXHIBIT CAR.

Early last week a safety exhibit car was put in service on the New York Central & Hudson River at the Grand Central Terminal station in New York, which contains a large number of models showing how the various machines used in a railroad shop should be properly safeguarded, together with a number of photographs showing various machine guards and safety appliances, as well as a large number of photographs relating to the trespass problem. The first two days that the car was open 600 men visited it. The car will be taken over the entire New York Central system, visiting first the more important division and terminal points and later covering the smaller places. Every employee will be required to visit the car, and lectures will be given at regular intervals in another special car arranged for this purpose which will accompany the exhibit car.

The exhibit car was constructed from a standard baggage car, is finished in white enamel and has a floor covering of linoleum. Along both sides, about 3 ft. from the floor, is a shelf which is finished in mahogany and on which the various models are placed. On the side walls, a couple of feet above the shelf, is a double row of neatly arranged photographs. On one side of the car are a number of photographs which show unsafe practices which commonly cause accidents resulting in injuries to the employees and others. Alongside of each picture is another one showing the safe practice which if it had been followed would have prevented the accident. This collection of photos is based on those causes which statistics covering the past two years show to have been the most prolific sources of accidents.

Another part of the side wall is devoted to a number of pictures showing how trespassers needlessly risk their lives, and above these is a statement calling attention to the fact that during the year ending June 30, 1912, there were 5,284 persons killed and 5,687 injured while trespassing on railroads in the United States. As the car is taken over the system it is expected that a number of magistrates and local public authorities will visit it, and their attention will be especially directed to this part of the exhibit. At the same time they will also be furnished with literature giving statistics on trespassing, with the idea that they will be encouraged to take a greater interest in preventing this abuse.

RAILWAY PROSPERITY IN SPAIN.—The railways of the country are progressing rapidly, as evidenced by the fact that in 1911 railway material was purchased abroad to the value of $4,734,000, and the state revenue from taxes on passenger and freight traffic was $4,742,000. The railroad receipts increased from $57,060,000 in 1911 to $62,422,380 in 1912. The increase in freight traffic has been such that in 1912 over 2,000 freight cars were constructed in the two Spanish workshops, besides the imports of rolling stock from abroad.

The models which are shown cover safeguards to shop machinery and also include water gage glasses of an approved and safe type, and models showing the proper way of applying railings to engine house turntables and to transfer tables; also of safeguarding stairways. There are a number of signs in the car which are intended to catch the visitor's eye and emphasize certain facts in connection with safety first. Among these are the following:

"It pays to do your work the safe way."

"The most important machine is man—Get the safety habit."

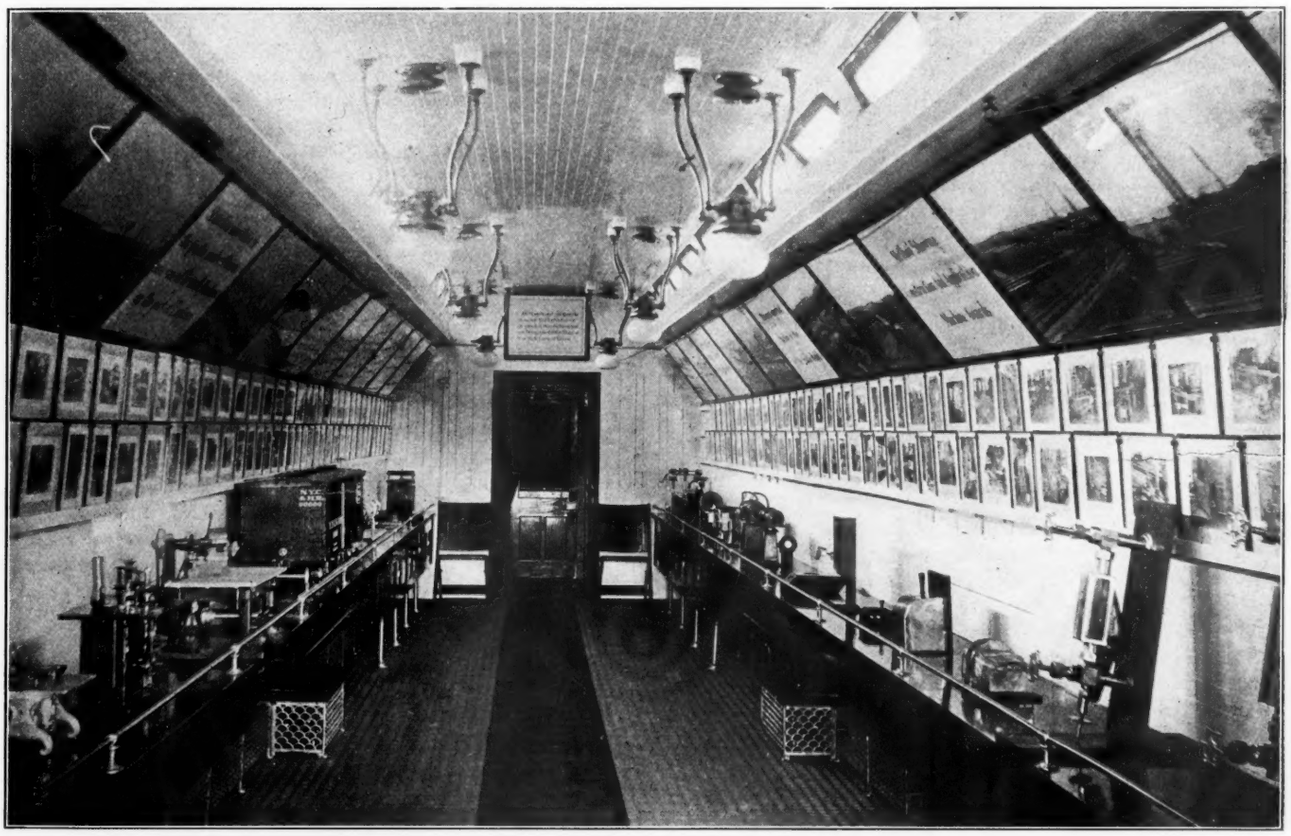
"Thirteen thousand miles of railroads—150,000 employees—We aim to make them all safe."

"Statistics show that by far the greater number of injuries are caused by unsafe practices on the part of employees."

"During the first four months of 1913 on the N. Y. C. & H. R. and L. S. & M. S. roads there were 35 fewer employees killed on duty than during the same period of 1912. Conclusive proof that safety work is a benefit to the employees and their families."

The above showing is a remarkable one when it is known that the locomotive mileage increased 2 per cent. on the New York Central and 8 per cent. on the Lake Shore, as compared to the same period for the previous year. This splendid showing is largely due to the energetic work of the safety department. There are now 60 division safety committees on the New York Central Lines, including 900 men. These committees consist of certain division officers and men from the ranks who represent each branch of the service. The men each serve six months and are then succeeded by other members. The old committeemen, however, retain their safety buttons and have the authority to cooperate with the safety committee in calling attention to and eliminating unsafe practices.

The lockers shown underneath the shelves at the far end of the car are intended to carry literature which will be distributed to the men. This will include safety bulletins and copies of the *Safety Magazine*. The men in charge of the car will also have copies of the safety standards of the New York Central Lines, which contain specifications profusely illustrated, showing exactly how different classes of machinery should be safeguarded. The car was equipped and will be operated under the direction of M. A. Dow, general safety agent of the New York Central Lines.



Interior of Safety Exhibit Car; New York Central Lines.

RAILWAY COKE FACTORY IN MANCHURIA.—The South Manchuria railway gas department is constructing a coke factory at the Fushun collieries. The building has been completed and the kilns and machinery are now being installed. The new factory will be ready early in August at the latest. There are to be five kilns, each capable of treating ten tons of coal at one time, installed in a row, to be used one after another. When completed the daily average output of coke will be about 35 tons.

AMUR RAILROAD, MANCHURIA.—With a view of shortening the distance between the line of the Amur railroad and the Pacific ocean, the construction committee of the railway has under consideration two branch lines, one from Khabanofsk to Imperial harbor, and the other from Shmakovka, a station on the Ussuri railroad 316 miles north of Vladivostok, to St. Olga bay. The cost of surveys is estimated at $38,625 and $30,900, respectively, and these sums were included in the railroad budget for 1914.

RAILWAY EXTENSION IN INDIA.—Permission having been obtained from the government, a commencement was made during the year by the Delhi railway with the extension of its line from Tebing Tinggi, the present terminus, to the port of Tandjong Balei. It is anticipated that on the completion of the first section the Delhi railway will undertake the construction of a side line to Siantar, through the Simeloengoen district, which district is being rapidly developed for rubber and tea cultivation. In view of the increasing trade of the port of Belawan, the Delhi railway has at present under consideration a proposal to double the line from Belawan to Medan.

PRINCIPLES OF ELECTRIC RAILROADING*.

BY C. L. DE MURALT,
Professor of Electrical Engineering, University of Michigan.

III.

In the last article of this series (*Railway Age Gazette*, May 9, 1913), we established the following formulas for use in calculating the force which it takes to move a railroad train under any given set of conditions:

To overcome the force of inertia, that is to say, to start a train from rest, or to stop a running train, it requires

$$f_i = 100\ W\ A \text{ pounds}, \qquad (1)$$

where W represents the weight of the train in tons and A the rate of acceleration, or retardation, in miles per hour per second.

To lift a train up a grade against the force of gravity, it takes a force

$$f_g = 20\ W\ p \text{ pounds}, \qquad (2)$$

where p represents the grade in per cent. (feet rise per 100 ft. horizontal length).

And to overcome train friction it takes a force

$$f_f = W\ (2 + \frac{V}{10} + \frac{90}{W'}) \text{ pounds}, \qquad (3)$$

where V stands for the train speed in miles per hour, and W' for the average weight per car in tons. To this amount must be added, in the case of uncompensated curves, an amount equal to 0.7 W for every degree of curvature.

TRACTIVE EFFORT.

The sum of these three forces constitutes what is generally called "tractive effort," namely the total effort or force which the engine must exert to move the train.

Let the tractive effort be represented by f, then we may write:

$$f = f_i + f_g + f_f$$
$$= 100\ W\ A + 20\ W\ p + W\ (2 + \frac{V}{10} + \frac{90}{W'})$$

or,
$$f = W\ (2 + 0.1\ V + \frac{90}{W'} + 100\ A + 20\ p) \qquad (4)$$

where f is the total tractive effort in pounds, if W is the weight of train in tons, V the speed in miles per hour, W' the average weight per car in tons, A the rate of acceleration in miles per hour per second, and p the grade in per cent.

This force f must be exerted whether the motive power is steam or electricity, and whether the train is a motor car train or a train drawn by a separate locomotive. Not all the factors shown in the formula are necessarily present at all times. For instance, during a start on the level, p will equal zero, and the last item of the formula will consequently be made to disappear. On the other hand, during a run at constant speed, A will equal zero and the second item from the end will disappear. It is therefore necessary to consider what values attach to each of the factors of the formula at every point along the road, and in that way we may establish the value for the tractive effort at every single point.

WEIGHT ON DRIVERS.

The next point to consider is, how is this tractive effort going to be produced and applied. In this connection we might as well realize that in practically all instances, the force necessary to move the train is developed within the train itself. The only exception which at once suggests itself to our mind is the case of the inclined cable railway, where the necessary tractive effort is produced by some outside machinery and is transmitted to the cars by means of the cable. In practically all other cases we have some kind of an engine, be it a steam engine, or an electric motor, or a gasolene engine, or an alcohol engine, or what not, which is placed in some part of the train and is connected to one or more of the axles of the train in such a manner as to make them revolve. The fact that these axles, through the wheels, are resting on the track, makes the train roll forward when the axles are turned.

Right here is where the importance of the weight on drivers comes in. It is through the contact between wheel and rail that the revolving motion of the axle is changed into a forward motion of the train as a whole. This can only take place if the contact between wheel and rail is good. If it is bad, that is to say, if the wheels slip on the rails, then the engine may still turn the axles but the train will not move forward.

The quality of the contact depends mainly upon two things, namely, upon the condition of the surfaces of wheel and rail, and upon the pressure with which the two are held together. As to the first, we all know that wet rails, or rails covered with sleet or snow, will let the wheels slip more readily, while clean dry rails, or sanded rails, will hold them. As to the second, the more pressure we exert on the contact surface, that is to say, the more weight we put over the driving axle, the greater will be the effort which we can transmit without letting the wheels slip. In practice this is generally expressed in a formula about as follows:

$$f_{max} = x\ w''$$

where f_{max} represents the maximum tractive effort in pounds which can be transmitted without slipping the wheels, if w'' stands for the weight on drivers in pounds, and x is the so-called "co-efficient of adhesion." The actual values of the latter are approximately as follows:

For clean dry rail	0.3
For wet rail	0.18
For rail covered with sleet or snow	0.1
For sanded rail	0.22

Inasmuch as all modern motive power is equipped with sanding devices, it has become customary to use the standard value for $x = 0.22$. With electric locomotives or electric motor cars it would be permissible to raise this to $x = 0.25$, because the torque exerted by an electric motor is perfectly uniform, whereas the torque exerted by a steam engine or gasolene engine fluctuates during one revolution between a maximum and a minimum value, so that the average value is less than its maximum value. As a matter of fact, tests with electric locomotives on clean dry rails have resulted in values as high as $x = 0.4$. But for the purposes of this treatise we will disregard this difference and assume uniformly $x = 0.22$, whether the motive power be steam or electricity or gasolene. The above formula thus becomes:

$$f_{max} = 0.22\ w'' \qquad (5)$$

And if we turn this around, we get:

$$w'' = \frac{f_{max}}{0.22} \qquad (6)$$

which enables us to determine the weight, in pounds, which must be placed on drivers if it is desired to develop a certain maximum tractive effort.

For any given train operating under certain conditions we can find the necessary maximum tractive effort by means of formula (4) above. If this value is inserted in formula (6), then we obtain the minimum weight which must be placed on drivers in order to move the train under these conditions. We will see later that certain systems of motive power can get along with this minimum weight on drivers, while others, in order to develop the necessary horse power, must have additional weight. It will be best, however, to postpone this part of the investigation until after we will have defined the term horse power as applied to railroad work, which we will do in the next article. Meanwhile it will be interesting to note which are the principal factors that influence the minimum weight on drivers.

If we look at formula (4) we see that there are two items which more than any of the others affect the value of f, namely the items "100 A" and "20 p." If either A or p is increased, even by a small amount, the resultant change in f is marked, and is greater than would be produced by a much greater proportionate increase of either of the other variables, for instance V. Expressed in words this means that the tractive ef-

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fort, and with it the required weight on drivers, will be seriously increased by any material increase in rate of acceleration or by any material steepening of the grade.

In ordinary trunk line work no very great rates of acceleration are required. The weight on drivers found in ordinary locomotives is quite sufficient for the purpose. In suburban service in the neighborhood of the big cities, matters are changed, however. In order to make reasonable schedule speed with stops from one to two miles apart or less, it is necessary that trains get under way as fast as possible. This means that the rate of acceleration is pushed up and with it, up goes the tractive effort required and the weight on drivers. We generally find that the first step taken to meet this condition is the development of some special type of suburban locomotives with an exceptional amount of weight on drivers. But there are cases where this is not sufficient. In real rapid transit work rates of acceleration of 2 miles per hour per second and more are not uncommon. To start a train of say 300 tons at this rate will, according to formula (1), require for starting effort alone a force of

$$f_1 = 100 \times 300 \times 2 = 60{,}000 \text{ lbs.},$$

to which must be added the effort necessary to overcome friction and grade. And, according to formula (6), the minimum weight on drivers corresponding to this force is

$$w'' = \frac{60{,}000}{0.22} = 273{,}000 \text{ lbs.}$$

To place such values in high speed passenger locomotives is not easy, and the difficulty is increased with every increase in train weight and rate of acceleration. The problem is solved by substituting motor cars for locomotives. Instead of concentrating our motive power on from two to four axles of the locomotive, we distribute it throughout the train over as many axles as necessary, and in that way we have no difficulty in placing as much weight on drivers as may be called for by the highest feasible rates of acceleration.

This is the reason why suburban service is best handled by motor car trains. And it explains how such lines as the Manhattan Elevated, or the New York Central, were able to materially increase their schedule speed when they supplanted their steam locomotives by electric motor cars.

The effect of increase of grade on weight on drivers is somewhat different. It is particularly noticeable in heavy freight service. On the level or on low grades we find ordinary locomotives quite heavy enough to haul even the heaviest of trains. When it comes to grades in the neighborhood of 2 per cent. and above, things are different. To run a train of say 2,000 tons up a grade of 3 per cent. will, according to formula (2), require for the overcoming of the grade alone a force of

$$f_g = 20 \times 2{,}000 \times 3 = 120{,}000 \text{ lbs.},$$

to which must be added the effort necessary to overcome friction. The minimum weight on drivers, corresponding to this force, is according to formula (6)

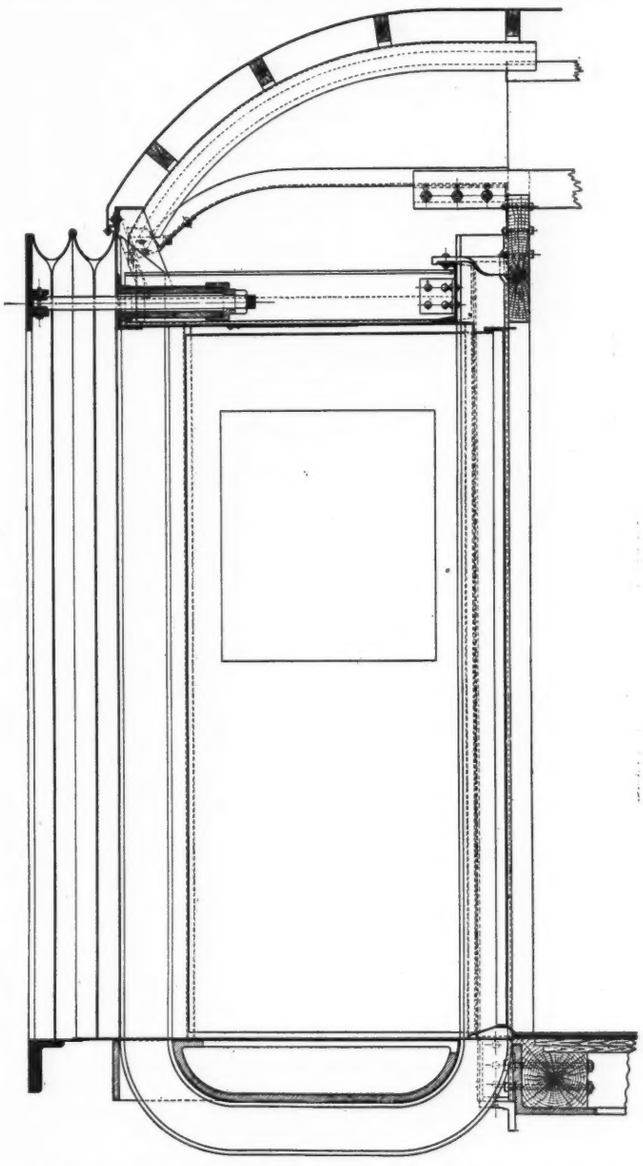
$$w'' = \frac{120{,}000}{0.22} = 546{,}000 \text{ lbs.}$$

Values of this order cannot readily be placed in an ordinary locomotive, nor for that matter in a locomotive of the Mallet articulated type. The use of individual electric motors under freight cars has not yet been seriously suggested. Thus we find service of this nature handled by double heading or the use of pusher locomotives in steam operation, and by multiple unit locomotives in electric work.

It is well to thoroughly realize that in both of the cases cited above, the question of speed and the question of power of the engine or motor did not enter. It was merely a question of weight on the drivers in order to be able to give the required tractive effort. In the first instance the increased weight on drivers was required in order to give a satisfactory rate of acceleration, in the second instance in order to overcome an extra steep grade. The questions connected with speed and horse power will be taken up in the next article.

NEW END CONSTRUCTION FOR PULLMAN CARS.

From a study of recent wrecks of passenger cars it has become apparent to the Pullman Company that a much more substantial end construction for both wooden and steel equipment is necessary to better withstand the shearing effect that a heavy steel underframe of one car has upon the superstructure of another car when this underframe laps over that of the car ahead in a collision. As a means to greatly reduce, if not to wholly eliminate the destructive effects in such cases, this company has adopted a new type of end construction which is shown in the illustrations. This design is the invention of Richmond Dean,

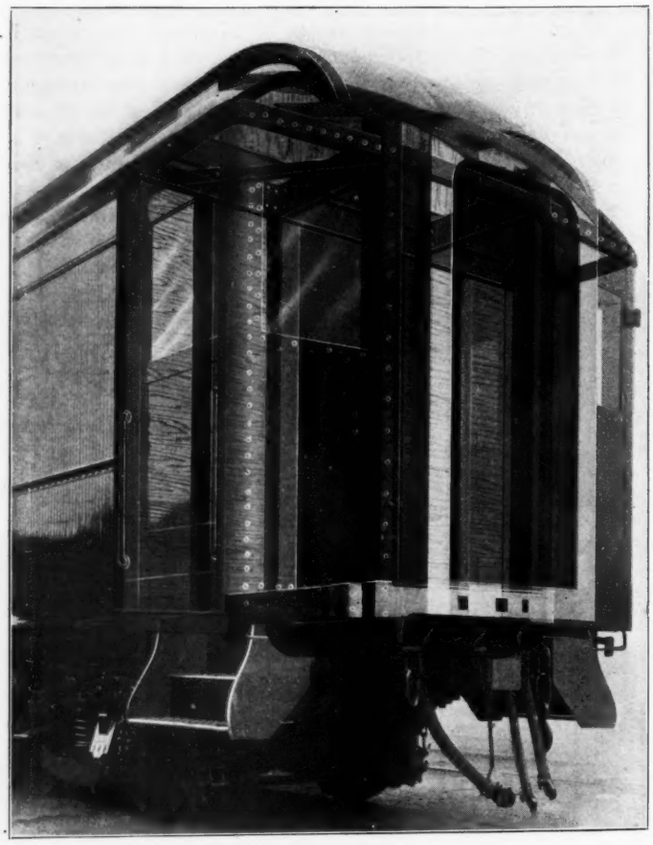


Side Elevation of U-Shaped Member in Pullman End Construction.

general manager of the Pullman Company. All of the modern Pullman equipment is provided with the Commonwealth steel underframe, which has a cast steel combined platform and double body bolster at each end. This underframe readily permits of the new end construction in combination with which a very efficient arrangement is obtained.

The principal feature of the new design is that of an I-beam bent in the form of a U, the legs of which extend upward through apertures in the platform casting. The upper ends of

these I-beams are thoroughly anchored in an end superstructure made up of structural shapes. Two of these U-shaped I-beams

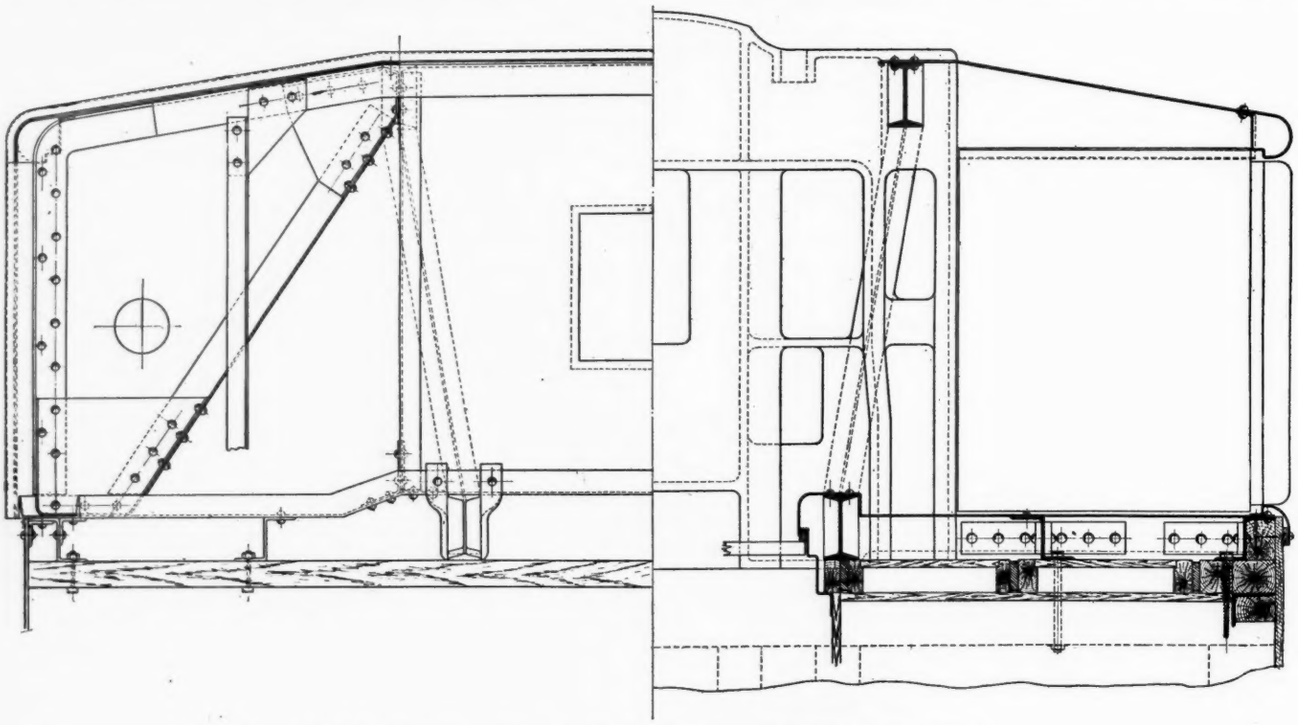


New End Construction for Both Steel and Wooden Cars.

at the platform end sills. The U-shaped members are made from one continuous I-beam instead of being made up of riveted sections, in order to eliminate any possibility of riveted joints failing. With this construction it is readily seen that in case of collision, should one underframe override that of the next car, its progress will first be obstructed by the legs of the U-beam at the bumper sill, which as they bend will tend to lift the whole car body, thereby offering greater resistance to further advance of the overriding car. If these should fail there would still be the second leg of the U-shaped member, together with the strengthened car end, to further retard the progress of the overriding underframe. From a study of the design it will be seen that this construction is most substantial, and it would seem that it would fully accomplish the results desired.

This new car end is being applied to all new Pullman cars and to all high class wooden cars as they pass through the shops for general repairs. Mr. Dean in his patent claims states that unduly strong underframes, instead of affording the presumed advantages of safety to passengers and of preserving the cars from injury, may, at least in some instances, contribute to the damage of the latter, especially when the force of the collision is sufficient to cause the overriding of the underframes, resulting in the breaking down of the end wall of the car. It is his idea to remove the surplus strength from the underframe and so construct and strengthen the vestibule, as described above, that it will act as a cushion to absorb and dissipate the force of the impact of such a collision without materially increasing the weight of the car. Throughout the construction it has been his idea to reduce the number of riveted joints to a minimum.

The new car body end wall is securely fastened to the cast steel combined platform and double body bolster, and is made up of Z-bar end posts extending to the top of the roof, and secured to the other parts of the car framing in the usual manner. The outer faces of these posts are riveted to a channel sill above the doorway, which is bent to allow for the rear legs of the heavy U-shaped I-beams; the remainder of the vestibule is constructed to harmonize with the new features. It is believed that



Top and Floor Plans of New End Construction for Pullman Cars.

are applied on each end of the car in the manner shown, one leg forming the door post at the entrance of the car, while the other forms the door post for the opening between the cars this new design will be the means of preventing the disastrous results that have been recently experienced with the ordinary type of end construction in collisions.

DECISION IN THE EXPRESS RATE CASES.*

Interstate Commerce Commission Orders Lower Rates—Reductions Hit Long-Haul Traffic—Opinion by Commissioner Marble.

On June 8, 1912, a report and order of the commission, written by Commissioner Lane, was issued in the above matters. That report was abstracted in the *Railway Age Gazette* of July 19, 1912, page 99.

With regard to the requirements contained in that order the present situation is as follows:

The carriers on the day appointed, September 1, 1912, adopted the combined waybill and label, and the practices relative thereto as prescribed in the commission's report. It now appears that the requirement that a label shall be affixed to each package in a shipment of perishable property comprising a number of packages operates at some points to retard prompt movement. The order herein will provide that a label need be attached to only one package in each such shipment, such label to indicate the number of packages in the shipment.

The proposed Directory of Express Stations has been prepared by the carriers and is in type ready for issuance as soon as the final order as to rates shall be made. The failure of the carriers to issue this directory on December 1 followed a request by them to this commission for delay and acquiescence in such request by the commission. The order herein will provide that such directory shall be issued not later than October 15, 1913, the date hereinafter fixed for the application of the block system of stating rates and the new rates herein prescribed.

With regard to the third portion of the order of June 8, 1912, in which it was required that through routes should be established and published, the express companies suggested that the number of indirect routes is so large that the publication thereof in a tariff would be unduly burdensome without corresponding advantages to shippers. On November 30, 1912, therefore, the commission issued an order in this regard as follows:

That the respondents, and each of them, are required to immediately appoint a representative who together with a representative of the Interstate Commerce Commission hereafter to be named shall constitute a committee to be known as the Direct Routing Committee, the duties of which board shall be to study existing express routes and consider all complaints of indirect or circuitous routing and proposed amendments to the existing routes of express carriers so as to give to shippers the advantage of the most direct normal route in point of time.

This committee has been named. Its labors may be expected to minimize the evil of indirect routing which in the past has operated to deprive shippers of the despatch which should be a feature of the express business. In any case where reasonably expeditious through routes do not result from the conferences of this committee the commission has ample authority to prescribe new and reasonably direct through routes.

The block system of stating rates is admitted by the carriers to be practicable and satisfactory. By its simplicity and intelligibility, it will afford the means for such a statement of express rates as will really publish them to shippers. The order herein will therefore prescribe such block system of stating rates as the reasonable practice to be followed by the respondent carriers on and after October 15, 1913.

An informal joint committee representing respondent carriers and the complaining shippers has cooperated in suggestions for a new classification of property for express transportation. The resulting classification is fairly made and reasonable.

The classification above mentioned includes also new rules governing the practices of express companies which are so revised, simplified, and amended that they are just and reasonable.

In the report of June 8, 1912, it was found that the form of receipt for property issued by the respondent carriers was so worded as to improperly limit the rights of the shippers thereunder and to discourage the presentation of claims by the shippers whose consignments had been lost or damaged in transit. One of the matters considered by the informal joint committee above mentioned in connection with the new classification was a proposed new form of express receipt. All of the respondent carriers represented in this committee agreed that the form of express receipt determined by that committee is just and reasonable. The Adams Express Company has since withdrawn its agreement on this point.

This form provides that the liability of the carrier shall be limited to a maximum of $50 on each shipment weighing less than 100 lbs., and to a maximum of 50 cents per pound on shipments weighing more than 100 lbs., unless a greater value is declared at the time of shipment. The rates prescribed are intended to cover the movement of the great mass of merchandise of moderate value. The classification prescribed provides for valuation charges upon articles of higher value. In the case of shipments of extraordinary value, not only is the carrier entitled to notice of such value in order that its care may be increased, but it is also entitled to extra compensation for the increased liability and care. Under the law it is the duty of shippers of property of more than ordinary value to bill the same at its true value in order that the legal rate may be applied. In the case of a shipper declaring a false value to secure a reduced rate one of the penalties under this form of receipt is an estoppel by which he is precluded, in case of loss or damage, from denying the correctness of such value so given.

The respondent carriers will be required to use the new express receipt exclusively in connection with all interstate shipments on and after October 15, 1913.

It has been suggested on behalf of these carriers that the amount of any c. o. d. bill for collection from a consignee shall be considered as a declaration of the value of the shipment, unless a greater value is declared. Such a provision seems to be a reasonable measure of protection to the carriers which they may adopt if they are so inclined.

From the foregoing it appears that serious controversy in this matter now exists only as to the amounts of the various rates to be applied under the block system.

The respondents have raised the contention that no order can be made concerning their schedules of rates as a whole, for the reason that the commission can not act except after hearing. To the rule relied upon the commission gives complete adherence. It does not follow, however, that in dealing with the rates of express companies, which are intimately related one to another, the commission must institute a separate investigation as to each rate. Stated in its extreme form, such a view would lead to the conclusion that express companies are outside the act. Each company has some millions of rates. Time would not be long enough to institute a separate investigation as to each of these. But the first fact developed by this investigation was that the rate scales of these respondents must be studied as a whole if justice is to be done to the express carriers or to the public. This investigation started with the consideration of single rates.

A petition was also filed on behalf of commercial organizations representing 212 of the largest cities of 42 states. Although specific rates were not named in this petition, the complaint involved the reasonableness of all the rates between these cities, and necessarily included the rates between them and the points intermediate to them upon all routes.

As a result of its investigation, the commission was convinced that its order must take into account the entire body of rates for express service. In this respect the express service is radically different from the services performed by the railroads in the carriage of passengers and property, and is more precisely

*Though the opinion has been very much condensed, the original language is preserved insofar as is possible.

comparable with the service performed for the public by the Post Office department. No rate prescribed in the order has been made without an investigation and a hearing. The rates determined by the commission to be reasonable and just have also followed a like exhaustive investigation, and also have been in detail submitted to the analysis and criticism of the respondents and of shippers throughout the country for a period of several months. Having determined after investigation, as it did, that justice as to express rates could be reached only by the form of order adopted, and having submitted every detail of that order, not only to its own exhaustive analysis, but also to the analysis and criticism of the respondents and the shippers of the country, it is apparent that the fullest possible hearing has been given as to all the rates shown.

The long delay in the issuance of the commission's order as to the rates requires explanation. It has arisen from the extraordinary care exercised by the commission to make its order entirely fair to the express carriers.

Prolonged informal conferences between the commission and the executive heads of the respondents, including traffic officers and counsel, were held in the endeavor to arrive at a common understanding of the various problems involved, but the results were far from satisfactory and the conferences were discontinued.

The commission returned to its ordinary procedure in rate cases and itself formulated and published the rates embodied in its report of June 8, 1912. That order required the respondents to show why certain rates fixed by the commission were not reasonable. By this mehod it was hoped that every valid objection to the rates made by the commission might be developed, and that all changes necessary to make them entirely just might be made.

The rates for express transportation between various points in the United States contained in the order of June 8, 1912, were typical and representative of all the rates here prescribed. At various times between that date and December 10, 1912, additional proposed rates in harmony with those contained in the report were served upon the respondent carriers, with an order that they also be considered in the same manner as those contained in the report. These rates taken together constitute a system of express rates between all of the blocks served by the respondents herein. This system of rates as an entirety was used by the carriers in the returns made by them which are hereinafter discussed.

On October 9, 1912, the respondents appeared and pleaded that the rates proposed by the commission were unduly low. It was claimed that the rates furnished by the commission had been applied to the actual business of the respondents, and that the resulting figures indicated a reduction in gross revenues of more than 30 per cent. This statement was utterly inconsistent with the results of the comparisons of its proposed rates with the existing rates of the companies which had theretofore been made by the commission. It was also inconsistent with the estimates made by the commission of the effect of its rates upon the actual business of two companies for single days which had theretofore been reported to the commission.

The express companies admitted at this argument, however, that the showing which they were able to make at that time as to the effect of the rates as applied to actual business was incomplete and unsatisfactory. They asked for and were given further time to complete and correct their estimates.

The commission, desiring that there should be uniformity in the presentation of the figures developed by the respondents, issued, on December 10, 1912, an order prescribing in detail the forms to be used in presenting the same. By this order the express companies were required to answer certain specific inquiries and to support their answers with sufficient detail to enable the commission to verify the results.

The responses of the express companies to this order all purport to cover the business of October 23, 1912, and not the business of the days in 1911, which was made the basis of the argument on October 9, 1912. Certain abnormalities in the business of October 23, 1912, hereinafter described, indicate that larger claims of loss from the proposed rates may be made upon the basis of the business of that day than would be possible upon the basis of the business of a normal day. Five of the respondents filed their working sheets and primary detail papers. The following is compiled therefrom:

Statement showing the ratio of reduced revenue on interstate shipments to gross revenue from all sources for October 23, 1912, including revenue from transportation of money and valuables.

	Reduction of revenue from—		
Express companies.	Interstate merchandise shipments. Per cent.	Interstate general special shipments. Per cent.	Total for all interstate traffic, all classes. Per cent.
Adams	15.36	0.71	16.07
American	13.14	.74	13.88
Southern	17.50	.94	18.44
United States	14.14	.67	14.81
Wells Fargo	14.89	.47	15.36
Average for five companies	14.65	.68	15.33

The contentions of the respondents that the rates submitted by the commission are unduly low are based upon the theory that the business of October 23, 1912, was normal and fairly representative of the conditions governing traffic throughout the year. It has been assumed by them that the various classes of traffic move in the same ratio one to the other each day throughout the year, and that whatever reductions in revenue are indicated by the experimental application of the commission's rates to certain classes of this traffic for the selected day must be accepted as proving the results that would follow the application of such rates to the actual business of extended periods.

It is apparent that the test of October 23 has produced results which are not indicative of the results that would follow the adoption of these rates, for it is evident from the returns that the business of October 23 was abnormal.

The average daily revenue from express transportation of the five leading respondents for the year ended June 30, 1912, on the basis of 313 business days (the factor employed by the Great Northern Express Company) was therefore $459,772.56. The revenue on October 23, 1912, as reported to the commission, was $517,895.34, or 12.64 per cent. more than the average daily revenue for the preceding fiscal year. As the respondents have made their claims of reductions in revenue by an application of the claimed percentage of loss for the one day to the total revenue of the preceding fiscal year, the nature of the revenue of October 23 is of the greatest consequence.

A comparison of the weights and revenues on October 23, 1912, with the weights and revenues during three months of 1909 showed that although there was no appreciable increase in the average weight per package, the average revenue per package on October 23, 1912, had increased from 1 per cent. to 72.1 per cent. over the average revenue per package for the three months of 1909.

The scales of rates of these respondents were practically the same on October 23, 1912, as they were throughout the three months. The average weight of the packages was not increased on that day. The causes of the increased revenue must be found either in an increase of the average journey for that day, or in an increased proportion of merchandise shipments, or both.

So for this day in October (a month which produced over one-tenth of the amount of the gross revenue for the preceding fiscal year) the commission is presented a showing which indicates 12 per cent. more revenue than the daily average for that year, and from 6 to 10 per cent. greater returns from merchandise rates than upon normal days. It is also shown, as a basis for estimated reductions in revenue, average revenues per piece which exceed the average of the three months by from 1 per cent. to 72 per cent., and is asked to conclude therefrom that its proposed rates are too low.

The reductions caused by the commission's proposed rates fall most heavily upon the long-haul traffic. A preponderance of long-haul traffic in a given day's business would present the indication of a greater reduction than if the business of that day

were normal. Likewise, the proposed rates effect a greater percentage of reduction upon shipments carried under the merchandise rates than upon any other class of traffic. Whatever may have been the cause of the increase in the average return per package on October 23, the resulting statements of reductions in revenue, when used as averages for extended periods of normal traffic, are untrustworthy and misleading.

Together with their report of the actual revenues for October 23, 1912, these carriers also reported the revenue that would have accrued on each package had the commission's rates been applied instead of the present rates. The average revenue per package resulting from the proposed rates, as reported by these carriers to the commission for October 23, 1912, is either only slightly less or else greater than the actual average revenue per package reported by these same carriers for the three months.

It may be said that the business for October 23 was abnormal, and that is the conclusion forced by an analysis of the figures presented by the respondents. If this be the accepted conclusion, then the elaborate estimates of loss based upon those figures lose all persuasiveness. If this conclusion is not accepted, however, and the business of this day is regarded as normal, then it appears that the earnings per package at the proposed rates would not have been greatly below the actual average returns per package for the three months in any case, and that as to six of the nine respondents the returns per package for the day at the proposed rates would have been in excess of the actual average returns for the three months at the company's rates.

The respondents have attempted to show that the proposed rates will not provide a reasonable return to the railroads, the position taken being that even the existing rates do not give adequate return to the railroads in addition to the expenses of the express company and the expenses which the railroads have arbitrarily assigned for the purposes of this controversy to their express operations. This contention, however, is based upon theories and assumptions to which the record gives no support, such as the adoption of an arbitrary and theoretical basis for the apportionment of railroad expenses between passenger operations and freight operations, and the further adoption of a like basis for the allotment of passenger train expenses between passenger service, baggage service, express service, and mail service.

Respondents' showing of expenses of transportation is not persuasive. These expenses are claimed to be increasing faster than gross revenues. This claim is based upon a showing that includes payments to the railroads under the percentage contracts as such expenses, and which makes no satisfactory showing of the details of the division of the expenses of the express companies between their transportation and non-transportation activities.

The argument which has been made by the express companies is based upon the assumption that no greater number of packages will be carried in 1914 than were carried in 1912, even though their unjust practices be reformed and even though the present unjust and unintelligible mass of rates be succeeded by a just and intelligible system. The showing has been considered without rejection of the assumption and without consideration of the increase in business that may be expected to result from fair dealing.

Also no account has been taken of the large amount of business carried by the respondents without charge. While it may be that the franks issued by them are within the law, nevertheless the expense of this portion of the express business is not legitimately to be charged to the paying patrons. It must be treated as a gift from the stockholders of the respondents to the favored holders of the franks. The amount of this business was not fully reported for October 23. What was reported, however, when computed on the basis of the average charge that accrued on the revenue packages, indicates the possibility of a substantial addition to the yearly revenues without injustice to anyone.

The losses in revenue from this free service, calculated according to the methods used by the respondents in estimating the reductions of revenues under the commission's rates, are thus shown to be $2,058,028, if account be taken of only the incomplete showing of free service made in the returns for October 23.

A considerable portion of respondents' argument is to the effect that the loss of business to the parcel post will so far reduce their earnings as to render all previous investigations valueless. This is equivalent to saying that inasmuch as shippers have been given the convenience and economy of the parcel post the express carriers must, on that account, be allowed to charge rates higher than would otherwise be reasonable. That is to say, the commission is called upon to take from shippers of the country all the benefit that they receive from the parcel post and give it to the respondents in the form of higher rates upon the remaining express business.

With regard to the small-package business of the parcel post it should be noted, however, that it will still be carried upon the railroads of the country. So far as the rail carriers are concerned, it is of no consequence to them whether they furnish rail transportation for the express respondents herein or for the Post Office department. The express companies, moreover, will not experience a gross loss of their earnings upon these small parcels, but only of the net difference between their earnings heretofore and the cost to them of furnishing terminal service upon these parcels. The commission's conclusion is that the establishment of the parcel post is not a justification for any higher scale of rates than the one here shown to be reasonable.

The commission's order is for two years only. That period will give abundant opportunity for a test of these rates under varying conditions amounting to a normal average. In no other way can the absolutely proper rate basis for the respondents be finally determined. Respondents are also at liberty at any time to bring forward new facts as a basis for a petition for modification of this or any other order.

The rates prescribed in the order are those shown in the report of June 8, 1912, and those prepared subsequent to that date and submitted under the orders to show cause hereinbefore recited. Some typographical errors have been corrected and a few relatively unimportant rates between points in geographical proximity, but connected by circuitous rail routes, have been increased to allow for existing transportation difficulties.

The commission decided that the rates prescribed in the order are just, reasonable, and non-discriminatory, and they ordered that on and after October 15, 1913, the respondents shall cease charging for the transportation of express matter, between the points named, any rate in excess of the rates therein prescribed.

The Long Island Railroad Company, during the pendency of these proceedings, carried on its own express traffic, and was not a party. No order, therefore, is made as to rates to or from points on the lines of that railroad. The consideration of these rates is left for subsequent proceedings unless its successor shall voluntarily concur in rates conforming to those named in the present order.

SIGNALING IN INDIA.—During the calendar year 1912 101 stations were fitted with apparatus for interlocking switches and signals, but 291 stations with instruments for block signaling.

RAILWAY SCHOOLS IN INDIA.—The use of railway schools in India continued to be appreciated during 1912, and at the close of the year there were 9,682 children and 9,591 apprentices and workmen attending these schools.

RAILWAY EMPLOYEES IN INDIA.—The total number of employees in India at the close of 1912 was 589,422, of which number 7,850 were Europeans, 10,066 Anglo-Indians and 571,506 Indians.

ACCIDENTS IN INDIA.—During the calendar year 1912 the number of passengers killed on Indian railways from causes beyond their own control was 0.02 per million of passengers traveling, which gives an average of 1 in 2,188 millions of miles traveled.

ELECTRIC TRUCKS IN FREIGHT HOUSE SERVICE.

Instances of the Use of These Trucks in Railway and Steamship Service Resulting in Greatly Increased Efficiency.

While electric storage battery trucks have not been used in as many instances or for as long a period for handling freight in storehouses and on piers as have similar trucks in the handling of baggage and mail, a number of railways and steamship companies have adopted such trucks in the former service with resulting economy. The Automatic Transportation Company, Buffalo, N. Y., has electric freight trucks in use by the Erie at Jersey City, N. J., Marion, Ohio, and Salamanca, N. Y.; by the Rock Island at Sylvis, Ill.; by the Louisville & Nashville at Pensacola, Fla.; by the New York Central & Hudson River at Utica, N. Y.; by the Baltimore & Ohio at Chicago; by the Hoboken Shore Road at Hoboken, N. J.; by the Panama Railroad at Colon, Canal Zone; by the Merchants & Miners Transportation Company at Savannah, Ga., Norfolk, Va., and Jacksonville, Fla.; by the Old Dominion Steamship Company at New York and Norfolk, Va.; by the Boston Terminal Company, Boston; by the Baltimore Steam Packet Company, Norfolk, Va., and by the Detroit & Cleveland Navigation Company, Detroit, Mich. Other companies manufacturing electric trucks have also made installations in freight houses and piers.

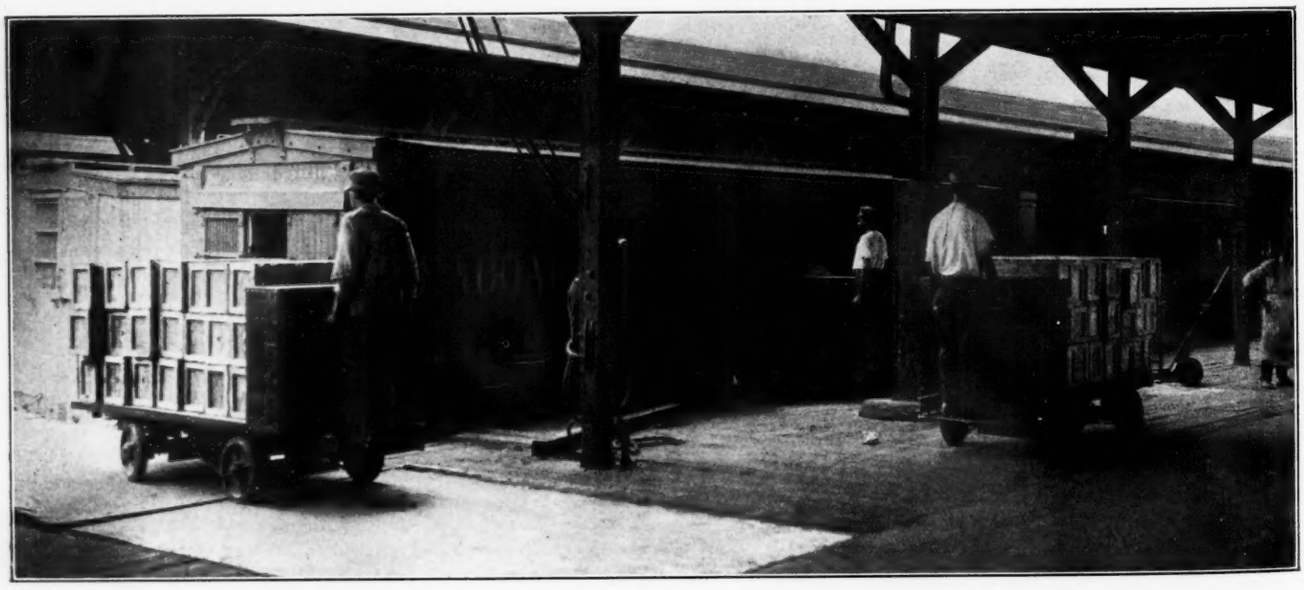
Trucks Used by the Rock Island at Silvis, Ill.

In general, the economy of the storage battery electric freight house or warehouse truck depends on the loads it carries, the distance it carries them and the rates that are paid locally for labor. The first large installation of trucks handling railroad freight was made by the Erie at its Jersey City terminal, where 24 trucks were installed on its transfer pier No. 6. This station consolidates and transfers about 600 tons of freight daily. The L. C. L. freight received at the various New York stations is brought here at the close of each day in cars and barges, checked out and distributed, some to fast freight trains leaving on schedule time and some to way freights. The following detailed comparison of the cost of handling freight for one year after the installation of electric trucks, with the operation with hand trucks for the year before, shows the relative economy in favor of the electric trucks:

	Electric trucks 170,170 tons			Hand trucks 183,371 tons		
Tonnage handled	No. men	Amount paid	Cost per ton	No. men	Amount paid	Cost per ton
Fixed charges — Foremen, clerks, cooper and sealer...	9	$6,425.38	$0.038	9	$6,392.01	$0.035
Checking—Checkers and callers	13	8,715.13	.051	17	10,830.23	.059
Labor — Loaders, stevedores, truckers	57	31,455.33	.185	103	54,119.00	.295
Total operating cost.....	79	$46,595.84	$0.274	129	$71,341.24	$0.389
Decrease with electric trucks.....				50	$24,745.40	$0.115

In addition to the labor cost for handling the freight the operation of the trucks required a day and night electrician and a helper, the yearly wages of the three men being $2,031.69. The electric current consumed cost $962.22; the trucks averaging a fraction over 7 k. w. per day each. The trucks are charged from a power line supplied by the generating station which furnishes light and power for the Jersey City terminal at night. The ability to charge the trucks during the day when the normal load on this station is very low, greatly reduces the cost of power for charging. The supplies and repair material used on these trucks for one year cost $617.79, including oil, paint, acid, distilled water and small repair parts. A large part of this amount was used in replacing the lead cells which had been broken by careless handling. The batteries were renewed for the second year at a cost of $1,700, the normal life of a lead battery being one year's service. The Erie has charged these trucks with five per cent. per year depreciation as well as five per cent. interest on the investment.

The Erie lately placed five trucks at each of its transfer sta-



Electric Trucks Used in Loading Cars on Merchants' & Miners' Transportation Pier at Savannah, Ga.

tions at Salamanca and Marion and arrangements are being made to increase this number to 10 at Salamanca and 15 at Marion. The payroll saving in the cost of handling freight at these two points due to the installation of the trucks was $0.15 and $0.13 per ton, respectively. Both these points are local L. C. L. freight transfer stations, about 450 tons per day being handled at Salamanca and about 600 tons per day at Marion. One platform, at Marion, is particularly narrow, being only 8 ft. wide and a truck which is designed to work in congested districts is used there.

The New York Central freight house at Utica, N. Y., has been equipped with six electric trucks handling both inbound and outbound freight, as well as transfer. Two of these trucks were first installed and the following check was made of their operations: An operator and one laborer were assigned to each truck to pick up freight requiring the longer hauls to transport and stow it. The labor cost for each truck was $0.18 per hour. The two trucks did the following work in one week:

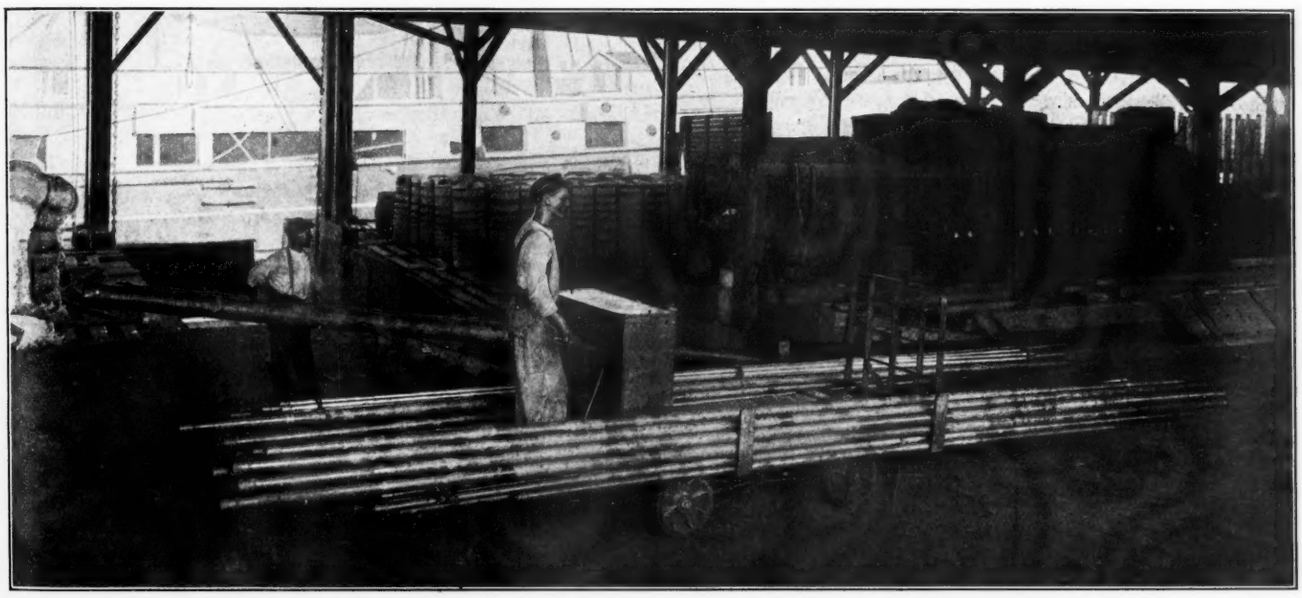
Hours worked	Tons handled	Packages handled	No. of loads	Distance traveled
115	350	11,111	388	309,600 ft.

The average performance of each truck would be as follows: 1,818 lbs. per load consisting of 28.6 packages of 63 lbs. each hauled an average distance of 798 ft. The average number of loads per truck per hour was 3.4, or 18 min. per load. In a ten-hour day the two trucks handled 61 tons. With a regular organization this performance can, of course, be much improved. To have loaded, hand trucked and stowed the 61 tons of freight in ten hours, covering the same distance as in the case of the two electric trucks, would have taken a force of ten loaders, hand-truckers and stevedores.

In one instance the handling of fruit, consisting of oranges and canteloupes, from refrigerator cars on a car float to the pier and bulkhead, including the stowing away, cost $0.125 with the use of electric trucks. This cost includes the loaders, truck operators and stowers. This figure seems more unusual when it is considered that the platforms on car floats are narrow, that the doors of refrigerator cars are narrow and that the incline from the float to the pier was steep—under some conditions being equivalent to a grade of 25 per cent. To each of these refrigerator cars there were assigned two electric trucks with two motormen, three loaders and three stevedores. The loads were carried an average distance of 300 ft. and the cars, with an average tonnage of 13.1 tons, were unloaded in an average time of one hour and five minutes. Under ordinary conditions the work would have been done by a hand truck gang, consisting of two loaders, two stevedores, eight hand-truckers and two helpers on the grade. This gang would require about one hour and fifteen minutes to unload a car.

The electric truck has been used at various points for handling steamship freight with very large resulting economies. Where freight is trucked in and out of the hold through the portholes, as is the case with a good many coastwise vessels, the trucks can run directly in and out of the hold. Where freight is handled in and out of the vessel in sling loads by means of hoisting machinery, as is customary with the larger vessels, the trucks can deliver to or take from the slings a complete load. These loads can be made up on the truck when loading and be carried away at a single trip when unloading.

On the first day that eight of these trucks were installed on the Cunard Line piers in New York, they worked from 1 p. m. to 6 p. m. and from 7 p. m. to 11 p. m., or nine hours. They took all of the freight coming from four slings, operating three hatches. The freight consisted of miscellaneous boxes, most of which contained macaroni and lemons, and had to be trucked from 150 to 200 ft. from the ship's side and stowed on the pier. The eight trucks with eight operators replaced a force of 32 hand-truckers. The laborers received $0.33 an hour, $0.50 an hour after 6 p. m. and $0.60 an hour on Sundays. The labor saving occasioned by the use of the eight trucks for this first day's work of nine hours was therefore $87.60, or $1.22 per truck per hour. The saving can, of course, be increased with longer haul as shown by the fact that when these trucks carried freight to the bulkhead of the pier, a distance of 600 to 700 ft., each truck did the work of eight men with a resulting labor saving of $2.64 per truck per hour.



Truck Carrying Pipes on Pier of the Merchants' & Miners' Transportation Company, Savannah, Ga.

At another steamship pier these trucks are in use in unloading cargoes of wine, the vessels usually bringing 6,000 to 8,000 50-gal. barrels. Each sling hoists three barrels, which, under the old method were dropped on the pier and rolled several hundred feet to the bulkhead by laborers stationed a short distance apart. With the electric trucks the barrels are dropped on a small portable platform from which six barrels are tipped onto each of the trucks and carried away to the stowing place. The seven trucks handled an average of 547 barrels per hour, each barrel weighing about 500 lbs., at a saving for labor of $8 per hour.

At another pier coastwise steamers were discharged by the use of these trucks at an average saving in the cost of handling

barrels, boxes and case goods of $0.10 per ton. In this case, freight was trucked from the hold through the portholes and stowed on the pier. At another point where the operation was similar to the last case mentioned, but where the labor rates are very low, the average saving compared with hand trucking made by each truck in the first six months' service was $600, or $100 per month per truck.

These trucks are also in service at a large number of industrial plants for handling raw materials, products in the course of manufacture and finished products being loaded out. They are particularly valuable for use in machine shops, foundries, car shops, warehouses, etc. One typical installation of trucks in this service showed the following record: One truck in one day carried 2,004 packages weighing 72.25 tons, making 71 loads, the working time being 8 hours and 36 minutes, and the distance under load 140,800 ft., or 26.7 miles. The average load was 28 packages of about 70 lbs. each, or one ton. The average distance was 1,983 ft., which was made in the round trip time of 7.25 minutes. A number of special types of trucks have been designed to meet the widely varying conditions encountered in such industrial plants.

These trucks are made in a number of types, all of which have the same operating mechanism. The frame consists of two steel channel sections extending the entire length of the platform which are supported on four spiral springs encased in malleable iron boxes which transfer the weight on the platform directly to the axles. The loading space on the largest truck made for freight house service is 6 ft. 9½ in. by 41 in., the over-all length of all of the trucks being 9 ft. 3 in. The batteries are carried in a box above the platform at the front end of the truck and the rear platform is closed by an end gate which is arranged to be lowered to a horizontal position to increase the length of the loading platform for handling long pieces. When this end gate is lowered the length of loading space can be increased to 9 ft. 9½ in.

The power from the batteries is taken through a maximum capacity fuse, the line being equipped with a circuit breaker and drum type controller. A set of resistances operated by a lever moving in a vertical plane, gives five speeds forward and five reverse, varying between one and ten miles per hour. A foot pedal is provided which must be pushed down by the operator before power can be sent into the controller. The releasing of this foot pedal sets the band brake on the jack shaft and closes the circuit breaker. From the controller the power is sent directly through the 2 h. p. motor, which is mounted between the frame members just behind the leading axle. The pinion of the motor is connected by a Morse silent chain to a sprocket wheel on the axle about four times the diameter of the pinion, a substantial and compact differential being provided on the axle. The gear ratio with the driving wheel is 12 to 1.

The axles are rigid under the frame and are set in annular roller bearings which are mounted in solid ribbed cast wheel centers provided with solid rubber or fabric tires, making a wheel with a total diameter of 16 in. The steering is done by means of a lever moving in a vertical plane, the wheels being moved independently for steering as is the case in all standard automobiles. The trucks vary in weight from 2,125 to 2,220 lbs. and have a load capacity of 2,000 lbs. The motor has a capacity sufficient to handle a loaded truck up a 15 to 25 per cent. grade.

Zululand Railway Extension.—The inclusion in the present railway extension proposals of a short standard-gage line from the present main line to Eshowe, the old capital of Zululand, has been received with much satisfaction. The line will traverse the Ginginhlovu battlefield, which still bears indications of the severe struggle with Cetewayo's hordes, and it will be the means of tapping a rapidly developing sugar area of great potentiality. Eshowe is at present served by a motor service.

A NEW PUBLIC SERVICE LAW IN PENNSYLVANIA.

The legislature of Pennsylvania has abolished the state railroad commission, a body of six years' standing, and has established in its stead a "public service commission" of seven members; and has adopted an entirely new law. The new commission is already in office.

The new law clothes the commission with much more extensive powers than the railroad commission possessed. The latter could recommend only, while the new commission has powers like those existing in New York, Massachusetts and other states to compel compliance with its orders. The law gives the commission authority over 25 lines of industry in public service, including railroad, electric railroad, gas, electric light, stage line, express, pipe line, baggage transfer, ferry, turnpike, bridge, wharf, telegraph, telephone, heat, water, refrigerator, sewage and municipal corporations. The law contains most of the far-reaching and drastic features of the public utilities laws of other states, recently adopted, including provisions regulating the issue of stocks and bonds by public service companies. The commission has exclusive jurisdiction over the construction, relocation and abolition of grade crossings, the expenses to be borne by the public service companies, the municipalities benefited and the state, in proportions the commission deems equitable.

The act does not apply to the generation, transmission or distribution of electricity, gas, water or steam for use by the producer or his tenants.

Every public service company must furnish and maintain service in all respects "just, reasonable, adequate and practically sufficient for the accommodation and safety of its patrons, its employees and the public, and in conformity with such reasonable regulations or orders as may be made by the commission."

Changes in tariffs can be made only after 30 days' notice to the commission and the public. The commission is empowered to determine whether the contemplated changes are reasonable and may allow or deny the company the right to make them. Every public utility is entitled to the full enjoyment and exercise of all its rights, powers and privileges lawfully possessed when the act was signed. A corporation, except it be a street railway, may extend its service through a municipality without the consent of the municipality to reach some more distant point, but the commission has the power to order connections one with another.

The signing and attestation of unauthorized stocks and bonds by the officers of a public service company, or the assenting to such issue by the directors, is punishable by fine and imprisonment.

The commissioners will serve for ten years each. Each commissioner will receive $10,000 a year, except the chairman, whose salary is $10,500. Four members of the commission will be a quorum, and hearings may be held by any of the commissioners. The Dauphin County Court (Harrisburg) has appellate jurisdiction in certain cases and in all injunction and mandamus proceedings.

The secretary will receive $5,000 a year; chief counsel, $7,500; assistant counsel and investigator of accidents, $5,000 each, and marshal, $2,000. Attorney-General Bell becomes general counsel of the commission by virtue of his office, and the act empowers him to name the counsel and assistant counsel.

The governor named the commissioners last week, and he included the three members of the old railroad commission. The full list is as follows:

Nathaniel Ewing, chairman (was head of the State Railroad Commission); ten-year term.

S. Larue Tone, hitherto general manager and chief engineer of the Pittsburgh Railways Company; nine-year term.

Samuel W. Pennypacker, ex-governor and member of the old railroad commission; eight-year term.

Emory R. Johnson, Philadelphia, professor of transportation and commerce, University of Pennsylvania; seven-year term.

Milton J. Brecht, member of the old railroad commission, six-year term.

Charles F. Wright, ex-state treasurer, five-year term.

Frank M. Wallace, banker, four-year term.

Mr. Tone is a graduate of Rensselaer Polytechnic Institute, and has served 20 years with the Pittsburgh Railways Company, in charge of engineering, power and operating departments. Mr. Wright is vice-president of the First National Bank of Susquehanna, and is interested in manufacturing and water power enterprises. He has been a member of Congress and state treasurer. Mr. Wallace is president of the Second National Bank of Erie, and treasurer of the Pittsburgh Coal Company.

The name of Dr. Emory R. Johnson is the most prominent one in this list; he has a national reputation as economist and writer. Professor Johnson was born at Waupun, Wis., March 22, 1864, and was graduated from the University of Wisconsin in 1888. He received the degree of Ph. D. from the University of Pennsylvania in 1893. After graduation he continued his studies in Germany; and then for three years, 1893-1896, he was instructor in economics at Haverford College. He has been professor of transportation and commerce at the University of Pennsylvania since 1896, and he has been a student of transportation for more than twenty years. In this field he stands in the first class. He is the author of the following books: "Inland Waterways: Their Relation to Transportation," 1893; "American Railway Transportation," 1903; "Ocean and Inland Water Transportation," 1906; "Elements of Transportation," 1909; and "Railroad Traffic and Rates," 1911, the last named jointly with Dr. G. G. Huebner. He is the editor of Appleton's "Railway Series," which includes a number of books by others than himself; and for many years he has been editor of the "Annals," of the American Academy of Political and Social Science. Dr. Johnson's books, however, represent but a fraction of his writings. He has done a large amount of work for the United States government, beginning more than fourteen years ago. In 1899, President McKinley appointed him a member of the Isthmian Canal Commission, which place he held for five years. He made a thorough report on the industrial and commercial value of an Isthmian Canal, and during the past two years he has made elaborate reports on the traffic and tolls of the Panama Canal, which were sent to Congress by President Taft, and were the basis of the president's recommendations concerning rates of toll and other matters. This last report embodied an exhaustive and comprehensive study from a traffic standpoint of all the great canals of the world. In 1904 Professor Johnson made a report on valuation of railroad property, for the Census Bureau, and in 1908 one on ransportation by water, on the Atlantic and Gulf coasts. In 1909 he went to Europe with the National Waterways Commission. He is still engaged on important studies for the government in connection with the Panama Canal.

RAILROAD SMOKE INSPECTORS' ASSOCIATION OF CHICAGO.

According to the United States Bureau of Mines, Chicago stands foremost in the matter of a scientific solution for the smoke problem of large cities. The Smoke Inspection Bureau of that city is composed of 25 inspectors whose chief duties are the inspection of the stationary plants. The locomotive smoke is inspected by men in the employ of the railroads entering Chicago who co-operate with the city inspector. Each year the city inspection bureau makes a series of observations extending over a period of about two months to determine the progress made by the railroads in the reduction of locomotive smoke. As a means of obtaining concerted action among the railroads in this matter, the General Managers' Association of Chicago appointed a committee, of which H. T. Bentley, principal assistant superintendent of motive power and machinery, Chicago & North Western, is chairman, to investigate the locomotive smoke problem. This committee found that the inspectors in service on the various roads were not able to give the service desired, and in the latter part of 1912 it was decided to pool the services of these men so that wherever they might be it was their duty to inspect the smoke of any locomotive of any road, and make their reports to the local company's smoke inspector and to the General Managers' Association, so that immediate action could be taken. In this way the usefulness of the smoke inspectors was greatly increased The chief smoke inspectors of each road meet every two weeks and go over the reports submitted during that time, discussing the ways and means of improving conditions and securing uniformity of action. If necessary, a number of inspectors are placed in a territory where the smoke is exceptionally bad to overcome the trouble.

As a means of determining the best possible way in which to reduce smoke from locomotives, the General Managers' Association made a series of tests on various smoke devices; these tests were conducted by the Pennsylvania Railroad on the testing plant at Altoona.* As a result of these experiments it has been recommended to the General Managers' Association that all the locomotives entering Chicago be equipped with the device recommended in the report. From the meeting of the Railway Smoke Inspectors' Association of July 25, it was learned that most of the roads operating in Chicago have already equipped their locomotives with smoke consuming devices, such as steam jets, brick arches, etc.

The results obtained by this joint association are well illustrated by the annual report of the city smoke inspector of Chicago, which is given in the accompanying table. This inspection was made by six of the city's inspectors over a period of 48 days; there were 11,151 observations made during that time. The table clearly shows the way in which the different roads are endeavoring to reduce locomotive smoke. While the biggest improvement over last year was made by the Illinois Northern, which jumped from the twenty-third place last year to the second place this year, the Chicago & North Western deserves a great deal of credit in moving from sixteenth place to fourth place, as that road operates in Chicago very nearly twice as many locomotives as any other road. The value of such an association to Chicago is very great, and the work of the railroad inspectors is greatly appreciated by the City Inspection Bureau.

YEARLY REPORT OF THE CITY SMOKE INSPECTOR OF CHICAGO ON LOCOMOTIVE SMOKE DENSITY.

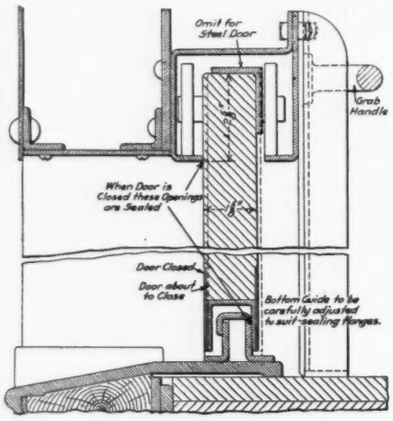
	Railroad.	Summer 1913— Per cent. Density.	Standing 1912.	Summer 1912— Per cent. Density.
1	A. T. & S. F.	4.73	2	4.75
2	Illinois Northern	6.31	23	17.92
3	Illinois Central	7.43	4	6.98
4	C. & N. W.	7.65	16	12.94
5	C. B. & Q.	7.74	1	3.51
6	L. S. & M. S.	9.49	9	11.55
7	Soo Line	10.86	24	19.18
8	C. M. & St. P.	11.75	6	9.36
9	N. Y. C. & St. L.	11.9	7	10.3
10	B. & O. C. T.	12.14	8	10.53
11	Michigan Central	12.23	5	8.98
12	Chicago Great Western	13.37	3	5.6
13	Baltimore & Ohio	13.4	25	20.92
14	Wabash	14.12	20	14.89
15	C. R. I. & P.	14.66	15	12.85
16	C. & E. I.	14.73	14	12.47
17	C. & O.	14.78	Not listed	.....
18	C. R. & I.	14.94	21	15
19	C. I. & S.	15.12	13	12.18
20	C. I. & L.	15.63	11	12.15
21	C. & A.	16.56	10	11.62
22	Pennsylvania	16.58	19	14.4
23	Grand Trunk	16.62	17	13.08
24	Chicago Junction	17.01	28	24.84
25	C. & W. I.	17.1	12	12.16
26	Belt	18.06	22	16.87
27	E. J. & E.	18.45	29	31
28	Pere Marquette	18.8	18	13.18
29	Erie	20.51	27	21.76
30	T. H. B.	26.22	Not listed	.....
31	South Eastern	28.23	Not listed	.....
32	C. S. Line	29.23	31	40

*The results of these tests were presented in a paper before the American Railway Master Mechanics' Association at the recent convention at Atlantic City, and were published in the *Daily Railway Age Gazette* of June 14, on page 1377.

RUMSEY MAIL CAR DOOR.

The Rumsey Car Door & Equipment Company, Chicago, has recently developed a mail car door including the principles involved in its standard freight car door. The illustrations of the door sections show clearly how these features have been included in the new door. When closed, the door is forced to a positive bearing on all four sides by the door post sealing flanges, which not only make it watertight but keep the cold out in winter.

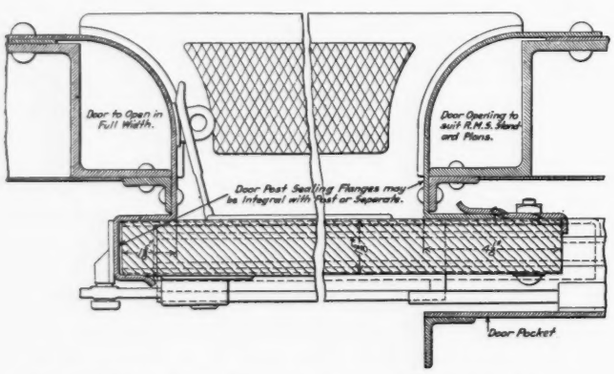
The chief point of interest in the Rumsey car doors is the


Omit for Steel Door
Grab Handle
When Door is Closed these Openings are Sealed
Door Closed
Door about to Close
Bottom Guide to be carefully adjusted to suit sealing flanges.

Vertical Section Through Rumsey Door for Postal Cars.

pressed steel, unitary post structure anchored at the top and bottom to the car sills and into which the door interlocks when closed, making it thereby an integral part of the superstructure. Any shock received by the door is transmitted through its interlocking feature to the posts, which by their anchorage transmit it to the superstructure. These pressed steel posts will stand a strain of 13,300 lbs. without the wood fillers and 15,000 lbs. with the fillers in place; to illustrate further, they take a stress equal to the resistance of a stick of oak 42¾ in. x 4¾ in. This represents the stress received at the center of the post, when No. 10 gage open hearth steel is used.

The combined steel and wood post is similar to what is known


Door to Open in Full Width.
Door Opening to suit R.M.S. Stand and Plans.
Door Post Sealing Flanges may be Integral with Post or Separate.
Door Pocket

Horizontal Section Through Rumsey Postal Car Door.

as the Harriman standard. The steel member extends sufficiently beyond the face of the post to form interlocking sealing flanges whose functions are identical with those of the all-steel post, and this construction is recommended for rebuilt equipment and for stock cars, owing to its moderate cost.

This company has also designed a flush door which does not interfere with the strength of the car superstructure and is the type recommended for stock and refrigerator cars. This particular type of door is also applicable to box cars of all dimensions.

General News.

The roundhouse and shops of the Chesapeake & Ohio at Cane Fork, W. Va., were destroyed by fire on July 28; estimated loss $50,000.

The South Dakota state tax commission has announced the assessment values of railway property in the state for the year, which have been increased from $32,001,000 in 1912 to $124,231,861 in 1913. This is an average of $29,529 per mile.

A Rock Island train was delayed for 40 minutes on July 30, near Ford, Kan., by a large number of grasshoppers that had blown on to the tracks at a deep cut. The trainmen were obliged to scoop them off the tracks with shovels and to sand the rails before the train could proceed.

Birmingham, Ala., reports a new kind of train robbery. The registered mail in the mail car of northbound train No. 4, of the Louisville & Nashville, was carried off, on the evening of August 5, by two robbers who got into the car at Calera, and handcuffed and bound the mail clerks, taking their time to do the job between Calera and Birmingham, 33 miles.

Charles J. Doherty, the engineman who figured in the rear collision of passenger trains on the New York, New Haven & Hartford at Stamford, Conn., June 12, was released by the City Court at Stamford August 1, the prosecuting attorney having asked for the dismissal of the charge of manslaughter in view of the action of the coroner, exonerating the engineman from criminal liability.

The Wells-Fargo Express announces that if it has to submit to the drastic reduction in rates which has been ordered by the Railroad Commission of California, it will withdraw from that State. Application will be made at once for a writ of review, and the contest will be taken to the highest court if necessary. For Wells-Fargo to withdraw from California would seem something like the Erie canal withdrawing from New York.

President Schaff of the Missouri, Kansas & Texas has announced that on account of the recent action of the attorney-general of Texas in instituting suit against the company and various subsidiaries for alleged violation of the anti-trust law, all work of improvement and extension on the system would necessarily have to be suspended, as the companies could not afford to take the responsibility for expending large sums in the face of the hostile attitude of the state administration, as manifested by this litigation.

Eugene Gilbert, a French aviator, on Sunday last flew from Paris to the town of Pejabo, on the Portuguese frontier, a distance of 1,030 miles, in an effort to win the Pommery Cup which is given for the longest flight in a single day. Gilbert beat the record of 875 miles made on June 11 last by des Moulinais, flying from Paris to Warsaw. Gilbert left Paris at 4:45 a. m., and flew for 7 hours without a stop to Victoria, in Spain, where he landed. Ascending again at 1 p. m., he headed for Portugal, and at 8 p. m. descended at Pejabo.

The conductors and brakemen of the Bangor & Aroostook have signed an agreement with the officers of the road to continue at work for another year at the present rates of pay. This road is not a party to the agreement for arbitration at New York City. The agreement under which these men have been working on the Bangor & Aroostook expired last February, about the time when the enginemen and firemen struck. Officers of the road say that henceforth contracts with employees will be made for terms which expire in the summer months, when traffic is light.

Representative Cullop of Indiana, has introduced in Congress a bill to give the Interstate Commerce Commission jurisdiction over all future consolidations of railroads and over the issue of stocks and bonds and the use of moneys realized from the sale of securities. The bill declares illegal the acquisition of property by a railroad not needed in its construction, equipment, maintenance or operation, or not needed for legitimate improvements. Notes for periods of less than one year may be issued to an amount equal to three per cent. of the company's assets without supervision by the commission.

Senator Bryan in a speech in Congress last Saturday, opposing Postmaster General Burleson's orders reducing parcel post rates on August 15, advocated one cent postage for letters. "If we lose more than seven cents a pound in the transportation of newspapers and magazines, how can we expect to make a profit in the transportation of merchandise?" he asked. ". . . A former Postmaster General has transported second class mail matter by freight. With much further extension the present Postmaster General will be transporting freight by mail. Unless we stop until we have more information, pretty soon the people will go to the freight offices to get their mail and to the postoffice to get their freight."

The Chicago & Western Indiana and the Belt Railway of Chicago last week appealed to the United States board of mediation and conciliation for assistance in settling the wage controversy with the roads' engineers, switchmen and yardmen who had taken a strike vote. The labor organizations accepted the offer of mediation, and Messrs. Chambers and Hangar arrived in Chicago on Monday. They immediately went into conference with the officers of the roads and representatives of the employees. The controversy concerns a demand for an increase in wages and an objection by the men to a new rule adopted by the companies limiting seniority rights to each road, as the two roads are now under separate ownership.

The New York, New Haven & Hartford is abolishing 16 highway crossings and one railroad crossing at a cost of $2,300,000. Plans are being prepared for the abolition of all grade crossings between Boston and Providence, 40 miles, and for eliminating crossings at Braintree, Quincy and Taunton, Massachusetts. Four of the crossings on which work is now in progress are in Massachusetts, and five in Rhode Island, at Pawtucket and Central Falls. This work includes the reconstruction of a section of the railroad about 1½ miles in length, and also the construction of a new joint overhead station. Two crossings are being abolished at Rumford, R. I., and two at Olneyville will soon be changed. Work is going on in Connecticut at Ansonia, Brookfield and Still River. The company has also authorized the elimination of crossings at Mill Plain and Winsted.

The arbitrators who have been chosen to consider the demands of the conductors and brakemen of the Eastern railroads —W. W. Atterbury, A. H. Smith, L. E. Sheppard and Daniel L. Cease—met in New York City this week in an attempt to agree upon the two additional arbitrators who will be required to complete the board, in accordance with the provisions of the law. President Wilson has designated Professor Royal Meeker, who has been nominated for the position of Commissioner of Labor Statistics, as the third member of the Federal Board of Mediation and Conciliation. This board has already been called upon to consider a number of railroad controversies. Commissioner William L. Chambers has gone to Chicago and to St. Louis to consider controversies on the Chicago Belt Railway, the Chicago & Western Indiana and the St. Louis Southwestern. Mr. Chambers or Mr. Hangar, or both, will go to San Francisco, at the request of the Southern Pacific, which is threatened with a strike of passenger train men.

An Unprofitable Mail Contract.

The Toledo, St. Louis & Western has given the postmaster general sixty days' notice that it will refuse to transport the mails after October 1. In view of the prospective increase in the parcel post business, the restrictive regulations imposed by the government and the inadequate pay, the road considers it to the best advantage to forego the postal business.

It is said that this is the first time that a railroad has ever flatly refused to carry out a mail contract with the government. The contract with the "Clover Leaf" has two years to run and the department will probably refuse to permit the road to cancel its contract.

Whether the Toledo, St. Louis & Western (Clover Leaf) will continue to carry Uncle Sam's mail on its passenger trains between Toledo and St. Louis after September 1 appears to hinge on the outcome of conferences to be held between officers of the company and the postmaster general within the next ten days.

The road receives $62,000 a year for the mail service on its entire system. This has been the fixed remuneration for a number of years, and officers of the road declare that under new conditions it is required to do double its former service. All stations and postoffices on the line can be reached by other steam and interurban roads. Recently the postoffice department notified the road that it must place a man each on duty at Forest and Michigantown, two small stations, in order to take care of mail from the night trains, patrons of both postoffices having complained of poor service. Apparently this is the straw that broke the camel's back. There are about 27 cities, towns and villages on the Clover Leaf route that can be reached by other steam railroads. Others can be served by traction lines, and still others must be reached by rural routes.

Railway Mail Pay.

Ralph Peters, chairman of the Railway Mail Pay Committee, says that the railways of the country, instead of being overpaid by $9,000,000, as was claimed by former Postmaster General Hitchcock, are in fact underpaid by $15,000,000. The postmaster general, in November, 1909, reporting on the exhaustive data furnished at that time by the railroads, said (House Document No. 105) that the committee of the department which had compiled the data "estimated that through a readjustment of railway mail pay on the basis of cost with 6 per cent. profit, a saving to the government could be made of about $9,000,000." But this estimate of the costs to the railways of carrying the mails has since been abandoned by the post office department, primarily because the department did not in its first estimates make allowance for any return on that part of the railway plant used in the service. If to the post office department's own figures there is added proper interest on the investment and due adjustment is made as to the percentage of the railway plant used in the postal service, the following revised result is obtained as to the *minimum* cost:

1. Interest at 6 per cent on 1.95 per cent. (the share of the railway plant used for postal service) of the net capital investment of all the railways in the United States is $16,380,000.
2. The space actually used for mail and incidental thereto, but eliminated from the department's calculations, $9,600,000.
3. Difference between approved methods and the department's methods of separating freight and passenger expenses, $5,000,000. Total, $30,980,000.

If this sum is added to the net amount estimated in document 105 as the cost of carrying the mails, it will yield about $15,000,000 more than the sum now paid for railway mail service.

The railroads maintain, therefore, that the most exhaustive inquiry ever made of this subject shows that a fair payment for the actual cost of the service would result in the companies receiving at least $15,000,000 more than they are now paid.

Opening of Centre Street Subway, New York City.

The subway, built by the city of New York and finished some months ago, between the Williamsburgh bridge, in Manhattan, and the City Hall station, about one and one-half miles long, was opened for partial use on Monday last. This is a four-track line, designed to connect the Manhattan terminals of the Williamsburg and the Brooklyn bridges, but only two of the tracks are at present in operation, and the connection, at the southern end, with the Brooklyn bridge, has not yet been completed. When all arrangements have been made this line will connect not only with the two bridges named, but also with the Manhattan bridge, which is midway between these two. Trains of the elevated lines in Brooklyn, coming over the Williamsburgh bridge to Manhattan, now use the new tracks and deliver passengers as far south as Chambers street station, which is under the new Municipal building.

Norfolk & Western Electrification.

The plans for the electrification of the Elkhorn-Bluefield section of the Norfolk & Western main line—about 30 miles—were noticed in the *Railway Age Gazette*, June 13, page 1319. Gibbs & Hill, consulting engineers, have recommended the adoption for this installation of the single phase system. They have made an exhaustive analysis of systems now in use in this country and abroad, and a careful study of local conditions; also comparisons of the capital and operating costs, based on operating data and manufacturers' bids for equipment. The intention is to use 25 cycle, single phase current at a potential of 11,000 volts at the trolley. Power will be supplied from a power house to be erected

at Bluestone, W. Va., with an installed capacity of 27,000 kw. For transmission purposes the potential will be raised to 33,000 volts, and the transmission line will be carried mainly on the catenary bridges. Feeding points will be established at suitable locations along the line sufficiently close to minimize voltage drop and inductive disturbances. In view of the fact that freight trains only are to be handled, the locomotives, of which there will be 24, are to have motors of the induction type, and the control and connections are to be arranged to give three running speeds of approximately 7, 14 and 28 miles an hour. Special attention is being given to the question of regeneration and electric braking on grades, which would decrease the wear and tear on train equipment, and also under favorable conditions tend to reduce the demand on the power house.

Des Moulinais.

Bleriot, Bellenger, Paulhan, Vedrines, Legagneux and Garros are some of the immortals who have upheld the prestige of France, but a greater has come upon the scene in the person of the pilot with the streaming name, Marcel Brindejonc des Moulinais, who has flamed in the sky of 1913 by flying 3,000 miles, from Paris to St. Petersburg and back to Paris, with the assurance and nonchalance of youth. Des Moulinais is not of age yet; a beardless boy. He drives an 80 h. p. monoplane through the uncharted air with as much coolness and precision as Burman or De Palma steers a bounding automobile in a road race. At 17 he mastered the Demoiselle, the butterfly of aeroplanes, which looked no safer than a scallop shell in the surges of the Atlantic. The boy was next heard of on the circuit in France, using his monoplane as if it were a perfected vehicle. When 1913 opened, being then 19, he was primed for great deeds. In three hours, five minutes he flew from Paris to London (287 miles) and then back to Paris by way of Brussels. Then came the red letter achievement of 1913, his long aerial voyage by way of Paris, Warsaw, St. Petersburg, Stockholm, Copenhagen, The Hague and Paris again, in fair weather and foul. He has flown at the rate of 140 miles an hour and he has the endurance of a roan horse.—*New York Sun.*

Cost of Valuation Work.

The Interstate Commerce Commission now estimates that it will take from five to seven years to value the property of the railways and that the work will cost the government from $10,000,000 to $15,000,000. The commission has asked for an immediate appropriation of $1,500,000 for the organization of the corps of engineers necessary to undertake the work. Commissioners Clements and Prouty and Secretary McGinty have told the House appropriations sub-committee that a carefully worked out estimate places the cost of the field work at $1,921,500 a year throughout the period. The plan presented by Mr. McGinty contemplates the division of the country into five districts containing approximately 50,000 miles of railroad each. In addition to the engineering work it is estimated that the accounting feature of the work will cost about $350,000 a year, and that the maintenance of a valuation office in Washington will cost probably $150,000 a year. Mr. McGinty was confident that the commission would be able to get the field force organized, through the Civil Service Commission, by the first of next year.

Valuations of one or more railroads have been made in twenty states. In most of these there have been no extensive or thorough inventories or appraisals. Texas made a comprehensive valuation about twenty years ago; Michigan and New Jersey have made elaborate valuations within recent years solely for taxation purposes. New York has valued several individual properties for various purposes. Oregon has valued several roads, but not all.

It is reported that at least eight states are making or planning physical valuations to be used for rate making. These are California, Kansas, Minnesota, Nebraska, Oklahoma, South Dakota, Washington and Wisconsin. Ten states have in recent years made or are making elaborate valuations of all the railroads within their borders. These are California, Kansas, Michigan, Minnesota, Nebraska, New Jersey, Oklahoma, South Dakota, Washington and Wisconsin. It is presumed that the Interstate Commerce Commission will begin its valuation of the railroads in those sections of the country where the states have made no start. Some states have already petitioned the Commission for permission to take advantage of the federal valuation so as to save them the cost of an independent valuation.

Railway Signal Association.

Secretary C. C. Rosenberg announces that the headquarters for the annual convention of this association, to be held in Nashville, Tenn., October 14, 15 and 16, will be at Hotel Hermitage, and members are requested to reserve rooms at the hotel at once so as to make sure that enough space will be set aside for those who are to attend the convention. Plans are being made for special trains from Chicago over the Chicago & Eastern Illinois and from New York over the Pennsylvania. On the 17th, after the close of the convention, there will be an excursion to Chattanooga; and if a sufficient number of members desire to make a daylight trip over the Cincinnati, New Orleans & Texas Pacific, General Manager Baker of that road will run a special train, with an observation car. Further particulars will be given in the official program for the convention which is to be distributed to members about September 16.

American Association of Railroad Superintendents.

The twenty-second annual convention will be held at the Hotel Sherman, Chicago, on August 21 and 22. The morning session on August 21 will be devoted to a business meeting, which will be followed in the afternoon by an address on the handling of explosives, inflammables and other dangerous articles, by Col. B. W. Dunn, and the report of the committee on Interchange Car Inspection, M. Marea, chairman, and the report of the committee on transportation, C. L. Gardner, chairman. The program for August 22 includes the report of the committee on Train Rules, B. F. Hoehn, chairman, an address on railway economics as they apply to the operating department, by W. W. Wheatley of New York, and an address on immigration in its relation to the operating department, by C. D. Schmidt, commissioner of immigration, Rock Island Lines.

International Railway Congress, 1915.

The permanent commission of the International Railway Congress Association, at its meeting in Brussels, last month, decided that the next session of the Congress should be held at Berlin, June 21 to July 3, 1915.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass. Convention, May 19, 1914, St. Louis.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York. Annual meeting, October 14-15, Philadelphia, Pa.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, St. Louis, Mo.; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOC.—H. G. McConnaughy, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next meeting, November 19, 1913, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, October 21-24, 1913, Montreal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—A. R. Davis, Central of Georgia, Macon, Ga.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wenlinger, 11 Broadway, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Next convention, January 20-22, 1914, New Orleans, La.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago. Annual meeting, May 28, Atlantic City, N. J.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago. Annual convention, October 18-24, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 112 West Adams St., Chicago.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York.

ASSOCIATION OF WATER LINE ACCOUNTING OFFICERS.—W. R. Evans, Chamber of Commerce, Buffalo, N. Y. Annual meeting, October 8, Philadelphia, Pa.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—H. A. Neally, Joseph Dixon Crucible Co., Jersey City, N. J. Meeting with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursday, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July August and September, St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, Oliver building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick building, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 829 West Broadway, Winona, Minn.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Annual meeting, August 18, Richmond, Va.

MAINTENANCE OF WAY & MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—W. G. Wilson, Lehigh Valley, Easton, Pa.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Annual meeting, September 9-12, Ottawa, Can.

NATIONAL RAILWAY APPLIANCE ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

NORTHERN RAILROAD CLUB.—C. L. Kennedy, C., M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria; 2d Thursday.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York. Annual dinner, second week in December, 1913, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Mobile & Ohio, Mobile, Ala. Next meeting, October 7, Chicago.

RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo. Next meeting, August 12-15, Nashville, Tenn.

RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa. Convention, October 14, Nashville, Tenn.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. Assocs.

RAILWAY TEL. AND TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Convention, September 8-12, 1913, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago. Annual meeting, September 23-25, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meeting with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.

UTAH SOCIETY OF ENGINEERS.—Fred D. Ulmer, Oregon Short Line, Salt Lake City, Utah; 3d Friday of each month, except July and August.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

As a means of relieving the industries of Cincinnati during the teamsters' strike in that city, the railways have petitioned the Interstate Commerce Commission for the privilege of canceling charges for storage as long as the teamsters' strike continues.

At the close of the convention of the American Association of General Passenger and Ticket Agents on September 9, at St. Paul, Minn., the agents will become the guests of the Northern Pacific for a tour of Yellowstone National Park, occupying eleven days.

Officers of the Ann Arbor have notified the Michigan Railroad Commission that the company proposes to contest the state two-cent fare law in the courts, claiming that the law is confiscatory. A suit of the Duluth, South Shore & Atlantic attacking the law is now pending before a master in chancery.

The attorney-general of Oklahoma is preparing suits against the principal railways of the state to collect refunds on passenger tickets sold within the state during the past three and one-half years, of the difference between the three cent fare which was collected, and the two cent rate which was finally sustained by the Supreme Court. The state corporation commission has estimated the total amount of the refunds due at over $5,000,000.

During the month ending the 15th of July, 1,721 carloads of potatoes from the South passed through the Harlem River yard of the New York, New Haven & Hartford, destined for cities in New England, an average of 54 cars a day. In the same time there were sent through this yard 467 carloads of watermelons, 135 of cantaloupes, 112 of berries and 98 carloads of peaches. The movement of freight cars through this yard, eastbound and westbound, now amounts to about 5,000 a day.

The Circuit Court of Appeals of Kanawha county, W. Va., has appointed a commission to supervise the redemption of rebate coupons which have been issued by the Chesapeake & Ohio in connection with passenger tickets, during the past year or two, since the beginning of the litigation concerning the constitutionality of the two-cent fare law of West Virginia, which was finally decided against the road. The commission will redeem outstanding coupons, and will have a clerical force to be paid for by the railroad.

The Chicago Great Western has announced that it will within ten days put into effect the new two-cent passenger rates involved in the recent decision of the Supreme Court. The injunction which restrained seven railroads in Minnesota from applying the two-cent rates was not dismissed in the case of the Great Western, and the company had previously announced its intention of seeking to continue the three-cent rate. The attorney-general of Minnesota had expected to move for the vacation of the injunction on August 18.

Edward White, of Chicago, president and manager of the Chicago & New Orleans Transportation Company, has announced that a barge line will be put in service by this company on September 1, between Chicago and New Orleans. The plan of the company is to operate a fleet of 150-ton barges in the Illinois and Michigan canal from Chicago to La Salle, where the cargoes will be transferred to larger barges. Mr. White estimates that the trip can be made in a week, and with profit at freight rates approximately 75 per cent. of the current railroad rates; and he expects to carry 3,000,000 tons a year.

The St. Louis & San Francisco has announced a considerable reduction in passenger train service, to take effect August 10, by which eight trains will be discontinued, and the time of several others lengthened by additional stops to take care of the business formerly handled by the discontinued trains. A. Hilton, general passenger agent, has issued a circular announcing the changes, in which the retrenchment policy is explained as follows: "The necessity for the most rigid economy, in all directions, has resulted in making some reductions in the Frisco passenger train service. The following changes, which will take effect August 10, are the result of the most careful consideration—the purpose being to cause patrons the least possible inconvenience. The management earnestly urges a careful consideration and a fair trial of the new service."

Freight Claims Frauds Punished.

The United States District Attorney at New York City has secured a number of convictions in connection with his recent investigation of fraudulent claims for damages to eggs arriving in New York City over railways from the west. H. C. Shimer and Adolph Fortgang, egg dealers, 336 Washington street, pleaded guilty and were fined $6,000 and $5,000, respectively, for bribing freight inspectors of the Pennsylvania and the Erie to approve the payment of excessive claims. Henry A. Guiler, assistant federal attorney, said that these defendants had collected wrongfully $38,000 on padded claims during the past year or two. Shimer was fined an additional $6,000 on the charge of bribing a railroad employee to give information concerning the business of competing egg dealers. DeWinter & Company pleaded guilty to attempting to induce discrimination in expeditious delivery of eggs by the payment of money to railroad employees, and a fine of $7,000 was imposed. The government attorney believed that in twelve months DeWinter & Company had profited $30,000 by means of these frauds.

California Commission Reduces Express Rates.

The California Railroad Commission has issued a decision ordering a reduction of the rates of Wells, Fargo & Company, for transportation of merchandise of approximately 15 per cent. below the present rates. It is estimated that the order will reduce the earnings of the company by $750,000 a year. The commission has prescribed entirely new rates on a ten mile zone basis, to become effective October 1. At the end of six months the company is to submit a statement of its earnings if it feels the rates are not reasonable. In the decision the commission declares that the company makes a net yearly profit of $842,097, or 136 per cent. on a property valuation estimated at $613,233. The decision terms the company "a parasite on the railroads," and suggests that instead of appealing to the Interstate Commerce Commission for permission to increase rates the railroads "look into its express situation." "That somebody is getting the worst of it, there is no doubt," the commission says, and continues: "We do not see why the railroad companies, if this service is a public necessity, as it seems to be, could not furnish and maintain the comparatively small amount of additional terminal equipment which is necessary to carry on the pick-up and delivery business of the express company."

The commission also points out that the Wells Fargo company pays to the Atchison, Topeka & Santa Fe 55 per cent. of its gross earnings on that line, and to the Southern Pacific only 40.8 per cent., and comments on the fact that "neither the Santa Fe nor its principal stockholders are heavily, if at all, interested in Wells, Fargo & Company, and that the Southern Pacific officials and its principal stockholders are." The commission estimates that the Southern Pacific "in effect pays to the express company $2,500,000 annually more than it should on all business in California."

INTERSTATE COMMERCE COMMISSION.

The commission has further suspended from August 4 until February 4 the operation of the certain schedules in certain boatline tariffs, which proposed to add to the list of articles the transportation of which is prohibited, butter, eggs, fresh meats and live or dressed poultry.

The commission has further suspended from August 13 until February 13 the operation of certain schedules in supplements to Agent W. H. Hosmer's tariff, which proposed to increase rates for the transportation of building stone, C. L., from Sandstone and Banning, Minn., to Kansas City, Mo., and other destinations.

The commission has further suspended from August 13 until February 13 the operation of the supplement to the tariff of the Chicago, Rock Island & Pacific, which publishes advanced rates for the transportation of wheat and corn, C. L., from Omaha, Neb., and other Missouri River points to Mann, Spencer, Unity, Colby and Abbottsford, Wis.

The commission has suspended from August 1 until November 29 the operation of certain provisions contained in a supplement to the tariff of the Chicago, St. Paul, Minneapolis & Omaha, which cancel commodity rates applicable to the transportation of emigrant movables between Chicago, St. Louis, St. Paul, Kansas City and other points and stations in South Dakota.

The commission has further suspended from August 9 until February 9 the operation of the supplement to tariff of the Pennsylvania Railroad, which contains schedules which advance rates for the transportation of petroleum and its products, C. L., from Emlenton, Pa., and a number of other points located on the Pennsylvania Railroad north of Pittsburgh and south of Franklin, Pa., to Detroit, Mich., Milwaukee, Wis., and other points of destination.

The commission has suspended from August 1 until November 29 the operation of an item in a supplement to W. H. Hosmer's tariff, which contains advances in rates applicable to the transportation of packing house products, in carloads, from Marshalltown, Cedar Rapids and Des Moines, Ia., to Chippewa Falls, Wis., Eau Claire, Wis., St. Paul, Minn., and other points, the increases amounting to from one to seven cents per 100 lbs. The present rate from Cedar Rapids to Eau Claire, for example, is 15 cents and the proposed rate 18½ cents per 100 lbs.

The commission has suspended from August 4 until December 2, 1913, the operation of certain schedules in a supplement to Agent A. D. Hall's tariff, which contain rates which exceed by ½ to 3½ cents per 100 lbs. the present lowest combination of local rates applicable to the transportation of flour from St. Jacob, Ill., to certain points in Kentucky and Tennessee. For example, the present rate on this traffic from St. Jacob, Ill., to Denton, Ky., is 21.5 cents per 100 lbs., the factors of which are 10.5 cents to Paducah, Ky., and 11 cents beyond; the proposed rate is 25 cents per 100 lbs.; increase 3.5 cents per 100 lbs.

Complaint Dismissed.

Dillon Coal & Transfer Company v. Oregon Short Line et al. Opinion by the commission:

Although advised by the commission that his claim informally presented would be considered only on the formal docket the petitioner took no further action for five years and then filed this complaint. The commission decided that the complaint was barred by the statute of limitations. (28 I. C. C., 81.)

Lagrange, Ga., Discriminated Against.

Lagrange Chamber of Commerce v. Atlanta & West Point et al. Opinion by Commissioner Clements:

The commission decided that the present adjustment of rates from the Ohio and Mississippi river crossings was unjustly discriminatory to Lagrange, Ga., and unduly preferential to Opelika, Ala. The defendants were ordered to remove this discrimination. (28 I. C. C., 178.)

Special Passenger Fares Cannot Be Ordered.

Carnegie Board of Trade et al v. Pennsylvania Company et al. Opinion by the commission:

Special fares for the movement of passengers in guaranteed numbers in one day, without baggage-checking privileges, may be provided by carriers under the permission given in section 22 of the act to regulate commerce. In the absence of discrimination the commission, however, has no power to prescribe such fares. (28 I. C. C., 122.)

Chicago-Missouri River Class Rates Unreasonable.

Cedar Rapids Commercial Club v. Chicago, Rock Island & Pacific. Opinion by Commissioner Harlan:

The class rates between Chicago and points on the Missouri river are adjusted on an 80-cent scale, and between Chicago and points on the Mississippi river in Iowa on scales of from 37.5 to 41.7 cents. Upon complaint on behalf of the cities in the interior of the state of Iowa the commission decided that the rates between such interior points and Chicago are unreasonable and unduly discriminatory in comparison with the rates to the river towns, and ordered carriers to submit to the commission for approval a revised basis of such rates grading the 80-cent Missouri river scale back across the state. Reparation was denied. (28 I. C. C., 76.)

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF MAY, 1913.

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total. inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.	Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Denver & Salt Lake	215	$73,833	$20,574	$97,957	$21,030	$17,385	$3,613	$33,011	$5,370	$80,409	$17,548	.....	$3,500	$14,048	$21,538
Louisiana & Western	208	126,212	62,630	199,921	24,042	35,209	8,177	57,321	5,612	130,361	69,510	$565	7,406	62,719	15,288
Morgan's La. & Tex. R. R. & S. S. Co.	404	262,559	101,381	389,011	69,793	59,174	15,070	179,509	12,930	336,476	52,535	—1,520	17,718	33,297	—116,038
St. Louis & San Francisco	4,742	2,419,933	880,950	3,524,319	695,390	464,826	78,441	1,253,278	130,910	2,622,855	901,474	.....	165,364	736,110	—109,481

ELEVEN MONTHS OF FISCAL YEAR, 1913.

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total. inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.	Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Denver & Salt Lake	215	$742,739	$258,416	$1,048,240	$180,129	$186,713	$23,612	$362,445	$55,164	$808,063	$240,177	.....	$38,500	$201,677	—$30,551
Louisiana & Western	208	1,386,609	646,665	2,128,681	257,374	382,847	80,108	651,743	62,491	1,434,563	694,118	—$86	83,247	610,785	171,163
Morgan's La. & Tex. R. R. & S. S. Co.	404	2,991,553	1,063,298	4,319,349	784,954	675,095	146,956	1,860,796	131,425	3,599,226	720,123	—22,623	202,975	494,525	—584,048
St. Louis & San Francisco	4,742	27,195,144	9,991,496	39,883,151	5,016,203	5,215,982	869,446	14,212,031	1,144,604	26,458,266	13,424,885	.....	1,844,848	11,580,037	1,313,548

MONTH OF JUNE, 1913.

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total. inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.	Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Alabama & Vicksburg	143	$91,035	$41,867	$144,869	$18,468	$42,298	$3,712	$48,794	$5,428	$118,700	$26,169	—$700	$5,272	$20,197	—$6,864
Alabama Great Southern	309	277,427	113,264	426,794	53,572	94,597	13,798	163,645	10,125	335,737	91,057	—848	15,300	74,909	1,457
Ann Arbor	292	106,510	46,658	166,424	31,774	10,093	4,434	57,800	6,751	110,852	55,572	—2,803	13,930	38,839	—490
Atchison, Topeka & Santa Fe	8,238	4,669,585	2,120,227	7,335,179	1,019,419	1,244,549	186,698	2,159,062	187,386	4,797,094	2,538,085	.....	325,839	2,212,246	—419,099
Atlantic Coast Line	4,616	1,759,173	632,591	2,609,253	244,060	513,703	51,809	1,033,255	90,946	1,933,773	675,480	.....	147,387	528,093	119,650
Baltimore & Ohio Chicago Terminal	77	.....	898	150,022	20,113	18,696	700	64,750	4,575	108,834	41,188	983	16,052	26,119	—5,877
Belt Ry. Co. of Chicago	21	.....	.....	259,251	22,056	29,439	654	99,240	8,726	160,115	99,136	.....	9,968	89,168	827
Bessemer & Lake Erie	204	1,014,650	32,117	1,058,468	84,425	169,198	8,110	218,900	13,449	494,082	564,386	.....	97,951	466,435	—128,777
Buffalo, Rochester & Pittsburgh	576	879,717	93,714	1,015,458	154,077	193,132	13,704	311,954	18,136	691,003	324,455	—392	19,000	305,063	—43,600
Canadian Pacific Lines in Maine	233	41,180	27,474	74,050	46,044	13,756	7,202	59,647	4,869	131,518	—57,468	.....	12,039	—69,507	23,936
Charleston & Western Carolina	341	97,709	26,828	132,675	—2,683	27,002	3,646	59,568	5,593	93,126	39,549	.....	8,269	31,280	39,378
Chicago & Alton	1,026	776,519	371,769	1,253,248	317,441	139,856	58,960	603,368	35,063	1,154,688	98,560	—3,760	43,461	51,339	—230,352
Chicago & Erie	270	327,673	65,791	438,967	22,694	79,709	23,004	216,140	13,234	354,781	84,186	—1,120	16,037	67,029	—75,429
Chicago & Northwestern	7,976	4,672,586	1,820,666	7,196,027	1,448,985	839,054	99,214	2,501,460	144,786	5,033,499	2,162,528	1,381	294,160	1,869,749	—16,000
Chicago, Indiana & Southern	359	302,299	24,885	340,536	46,260	104,783	7,371	128,992	5,200	292,606	47,930	692	15,282	33,340	—14,383
Chicago Junction	12	.....	.....	173,610	15,884	2,671	920	84,796	3,572	107,843	65,767	.....	2,534	63,233	24,161
Chicago, Milwaukee & St. Paul	9,592	5,205,453	1,785,450	7,631,916	1,206,397	1,183,386	145,107	2,587,751	166,699	5,289,340	2,342,576	48,103	328,739	2,061,940	150,605
Chicago, Rock Island & Gulf	477	170,536	54,037	242,458	27,851	33,135	10,238	97,539	7,784	176,547	65,911	—1,154	7,934	56,823	—4,180
Chicago, St. Paul, Minneapolis & Omaha	1,744	827,937	433,888	1,372,608	236,200	118,434	35,170	510,103	33,771	933,678	438,930	1,299	68,791	371,438	—4,651
Cincinnati, New Orleans & Texas Pacific	337	636,711	155,808	835,368	130,833	204,349	25,820	248,242	23,885	633,129	202,239	—125	29,000	173,114	—58,267
Colorado Midland	338	94,556	27,173	127,695	31,711	31,916	9,197	58,329	5,918	137,071	—9,376	—585	1,877	—11,838	—16,023
Cumberland Valley	162	230,386	56,705	299,759	53,495	33,680	3,909	99,689	9,730	200,503	99,256	1,051	5,702	94,605	—2,689
Delaware & Hudson Co.—R. R. Dept.	854	1,643,809	250,938	1,953,503	141,446	303,269	27,126	660,974	66,293	1,199,108	754,395	—3,429	49,700	701,266	—429,432
Delaware, Lackawanna & Western	958	2,397,986	750,866	3,392,183	526,670	494,941	88,716	1,032,988	69,502	2,212,817	1,179,366	26,601	165,000	1,040,967	—114,856
Detroit & Mackinac	418	67,907	27,283	100,952	13,978	15,055	2,042	36,920	3,680	71,675	29,277	—3,108	8,419	17,750	33
Detroit River Tunnel	2	.....	.....	106,700	3,465	3,206	.....	9,138	62	15,871	90,829	.....	6,000	84,829	9,805
Duluth, Missabe & Northern	356	1,190,266	41,599	1,240,339	126,035	100,050	2,564	196,099	12,136	436,884	803,455	11,199	72,341	742,313	12,718
El Paso & Southwestern	982	550,683	110,269	691,680	72,447	84,408	16,492	206,459	29,289	409,095	282,585	—1,734	35,000	245,851	21,075
Elgin, Joliet & Eastern	824	1,073,583	3	1,149,451	129,010	172,116	5,116	312,786	17,351	636,379	513,072	.....	47,862	465,210	—85,610
Erie	1,988	3,367,481	863,763	4,605,126	324,489	724,629	115,821	1,431,247	129,217	2,725,403	1,879,723	12,587	133,717	1,758,593	400,672
Florida East Coast	642	142,697	107,851	304,150	64,077	48,134	5,586	128,632	17,925	264,354	39,796	—2,017	32,018	5,761	—48,119
Fort Worth & Denver City	454	221,759	115,777	357,020	61,999	82,984	7,891	144,296	14,531	311,701	45,319	—2,183	13,287	29,849	—26,691
Grand Rapids & Indiana	578	255,263	155,582	451,881	78,708	86,642	14,151	193,018	16,290	388,809	63,072	—2,608	23,641	36,823	—11,493
Great Northern	7,752	4,881,023	1,476,491	6,797,699	1,617,650	615,499	125,597	1,804,060	244,434	4,407,240	2,390,459	18,971	422,096	1,987,334	224,964
Gulf, Colorado & Santa Fe	1,596	615,789	253,088	946,071	131,158	192,572	26,592	416,143	43,115	809,580	136,491	.....	34,507	101,984	—47,730
Indiana Harbor Belt	105	.....	.....	259,200	42,205	35,316	3,788	111,782	7,211	200,302	58,898	2,528	5,500	55,926	11,920
International & Great Northern	1,160	470,213	182,267	704,554	92,575	100,503	27,876	355,882	29,499	606,335	98,219	218	20,000	78,437	2,034
Kanawha & Michigan	177	258,079	31,612	296,772	51,757	61,413	2,823	89,792	6,640	212,425	84,347	111	7,055	77,403	—19,042

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF JUNE, 1913—(CONTINUED).

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total. inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Kansas City Southern	827	$623,566	$155,039	$853,980	$92,220	$110,321	$28,298	$320,208	$34,091	$585,138	$268,842	.....	$41,142	$227,700	$43,167
Lake Erie & Western	906	411,416	77,915	515,045	92,455	99,103	10,679	188,348	11,990	402,575	112,470	.....	22,139	90,331	13,810
Lake Shore & Michigan Southern	1,872	3,099,611	1,194,638	4,827,892	722,825	913,570	88,130	1,610,281	110,055	3,444,861	1,383,031	$19,846	150,000	1,252,877	—86,866
Long Island	399	275,940	877,244	1,291,017	147,049	118,676	19,325	456,290	30,348	771,688	519,329	—6,468	63,660	449,201	—11,833
Louisiana Ry. & Navigation	351	114,307	27,210	151,576	25,729	24,273	5,603	63,598	5,361	124,564	27,012	.....	4,005	23,007	—4,941
Louisville, Henderson & St. Louis	200	63,123	33,744	103,506	19,568	13,440	4,530	37,714	3,883	79,135	24,371	552	10,348	14,575	14,154
Maine Central	1,206	542,711	327,669	942,991	205,664	140,758	29,601	353,418	67,787	779,228	145,763	476	56,486	89,753	—128,695
Michigan Central	1,817	1,809,122	887,054	3,015,719	371,527	465,523	68,278	1,165,063	52,777	2,123,168	892,551	—2,184	116,000	774,367	112,067
Minneapolis & St. Louis	1,586	554,572	167,257	770,024	108,426	96,818	17,553	285,409	20,121	528,327	241,697	—23	32,701	208,973	35,279
Minneapolis, St. Paul & Sault Ste. Marie	3,976	1,656,941	600,998	2,414,216	449,938	352,734	53,441	804,756	57,803	1,718,672	695,544	10,171	151,439	554,276	—69,308
Missouri, Kansas & Texas System	3,817	1,367,355	802,495	2,351,588	430,824	330,791	66,692	1,001,281	87,308	1,916,896	434,692	—6,455	105,355	322,882	—165,714
Mobile & Ohio	1,122	892,888	117,807	1,070,683	85,944	225,970	38,424	398,458	31,372	780,168	290,515	—1,244	28,222	261,049	—43,458
Monongahela	65	128,776	2,651	133,505	25,455	4,094	320	25,812	2,403	58,084	75,421	.....	3,800	71,621	8,850
Nevada Northern	165	124,619	12,818	140,698	18,096	18,802	413	37,957	4,328	69,596	71,102	.....	7,889	63,213	—5,655
New York, Chicago & St. Louis	565	903,584	153,265	1,093,277	146,387	154,626	46,876	430,515	19,126	797,530	295,747	—1,105	40,579	254,063	—44,300
New York, Philadelphia & Norfolk	112	318,927	43,007	393,682	26,784	59,781	3,614	173,538	14,309	278,026	115,656	.....	9,473	106,183	—589
Norfolk Southern	562	174,021	63,545	264,194	30,126	34,563	5,613	86,202	8,734	165,238	98,956	—481	4,811	93,664	2,870
Northern Central	472	793,095	239,830	1,106,922	160,402	251,758	17,592	517,115	30,918	977,785	129,137	317	40,475	88,979	—60,923
Pennsylvania *Co.*	1,751	4,690,318	905,288	6,154,779	1,117,757	1,035,631	89,712	2,184,814	121,836	4,549,750	1,605,029	—4,912	244,815	1,355,302	—636,113
Pennsylvania *Railroad*	4,032	11,228,158	3,291,815	15,559,936	1,896,468	3,014,171	216,653	5,403,006	407,785	10,938,083	4,621,853	—148,572	584,346	3,888,935	199,691
Philadelphia, Baltimore & Washington	713	929,093	664,335	1,783,321	216,843	353,675	33,771	754,110	51,000	1,409,399	373,922	.....	53,477	320,445	—42,836
Pittsburgh, Cincinnati, Chic. & St. Louis	1,472	2,488,039	760,751	3,649,063	708,777	834,060	80,707	1,433,206	78,679	3,135,429	513,634	—833	140,656	372,145	—590,418
Richmond, Fredericksburg & Potomac	88	157,515	71,085	259,219	42,518	26,357	3,540	87,346	7,020	166,781	92,438	—720	41,006	50,712	—25,947
San Antonio & Aransas Pass	727	221,385	122,238	364,096	114,314	72,271	7,272	151,101	11,614	356,572	7,524	.....	12,719	—5,195	—17,189
Seaboard	3,082	1,343,656	377,176	1,940,658	185,844	243,091	60,418	718,619	74,246	1,282,218	658,440	—2,122	77,000	579,318	232,469
Southern	7,037	3,195,302	1,514,709	5,147,098	796,755	733,052	183,908	1,869,486	176,124	3,759,325	1,387,773	2,294	200,825	1,189,242	43,118
Southern in Mississippi	281	37,698	26,609	71,716	23,671	9,825	2,339	41,246	4,931	82,012	—10,296	.....	8,337	—18,633	—10,469
Union R. R. of Baltimore	9	120,418	21,846	143,937	11,609	.....	1,117	5,450	2,779	20,955	122,982	.....	8,488	114,494	2,685
Union R. R. of Pennsylvania	31	.....	.....	505,553	48,995	108,017	100	163,133	5,221	325,466	180,087	—1,769	10,000	168,318	—43,347
Vandalia	910	597,571	205,393	884,235	153,365	190,527	26,710	370,033	19,954	760,589	123,646	.....	30,136	93,330	—60,537
Washington Southern	36	45,122	34,043	108,499	23,733	13,544	1,412	43,067	3,082	84,838	23,661	—107	3,340	20,214	1,069
West Jersey & Seashore	356	143,993	394,904	570,745	72,119	76,515	16,922	228,347	15,357	409,260	161,485	—2,512	27,310	131,663	—42,087

TWELVE MONTHS OF FISCAL YEAR, 1913.

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total. inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	143	$1,240,791	$491,427	$1,861,937	$281,033	$371,898	$43,604	$641,103	$66,960	$1,404,598	$457,339	—$2,969	$69,559	$384,811	$90,838
Alabama Great Southern	309	3,488,041	1,291,317	5,231,985	627,364	1,177,997	154,663	1,736,409	110,471	3,815,904	1,416,081	—7,376	176,041	1,232,664	23,453
Ann Arbor	292	1,381,716	549,661	2,072,702	295,141	259,188	49,641	743,898	87,215	1,435,083	637,619	—8,944	167,159	461,516	—63,914
Atchison, Topeka & Santa Fe	8,238	64,547,715	25,491,140	98,090,754	15,239,198	16,317,940	2,074,835	28,193,318	2,005,392	63,830,683	34,260,071	.....	4,067,432	30,192,639	1,558,678
Atlantic Coast Line	4,616	24,497,524	8,931,836	36,123,072	4,667,357	5,581,307	618,144	12,821,637	947,087	24,635,532	11,487,540	.....	1,451,477	10,036,063	501,342
Baltimore & Ohio Chicago Terminal	77	.....	22.531	1,794,351	229,264	276,256	9,111	832,363	56,450	1,403,444	390,907	10,730	209.181	192,456	92,070
Belt Ry. Co. of Chicago	21	.....	.....	3,193,208	195,307	430,158	6,196	1,331,104	68,435	2,031,200	1,162,008	.....	100,227	1,061,781	105,788
Bessemer & Lake Erie	204	8,509,688	368,161	9,012,362	982,051	1,708,771	108,586	2,175,830	134,149	5,109,387	3,902,975	.....	292,951	3,610,024	—57,016
Buffalo, Rochester & Pittsburgh	576	9,411,879	1,127,612	10,947,246	1,557,963	2,161,210	141,660	3,580,617	224,441	7,665,891	3,281,355	—7,365	216,000	3,057,990	183,843
Canadian Pacific Lines in Maine	233	983,341	379,027	1,476,484	354,705	220,616	74,604	662,006	60,677	1,372,608	103,876	.....	124,039	—20,163	92,311
Charleston & Western Carolina	341	1,441,549	356,357	1,895,999	321,938	313,928	40,289	738,532	57,907	1,472,594	423,405	.....	63,269	360,136	61
Chicago & Alton	1,026	9,908,251	4,218,552	15,254,865	2,550,080	3,379,145	539,088	5,968,794	402,965	12,840,072	2,414,793	—34,419	486,761	1,893,613	—1,260,480
Chicago & Erie	270	4,225,138	741,783	5,493,371	896,208	1,179,829	252,171	2,860,029	137,553	5,325,790	167,581	—9,992	166,722	—9,133	—445,336
Chicago & Northwestern	7,976	54,661,588	20,557,623	83,035,921	11,501,186	11,568,496	1,348,982	32,241,258	1,592,858	58,252,780	24,783,141	11,296	3,597,160	21,197,277	17,540,872
Chicago, Indiana & Southern	359	3,936,915	303,952	4,407,458	571,383	1,120,674	97,171	1,524,781	115,986	3,429,995	977,463	5,074	195,401	787,136	316,485
Chicago Junction	12	.....	.....	2,003,912	204,840	122,761	13,278	975,413	43,990	1,360,282	643,630	.....	22,212	621,418	93,617
Chicago, Milwaukee & St. Paul	9,592	67,964,161	18,457,136	94,084,055	10,648,785	13,871,986	1,894,343	35,065,842	1,403,012	62,883,968	31,200,087	174,748	3,823,832	27,551,003	9,339,213
Chicago, Rock Island & Gulf	477	2,487,099	697,267	3,395,974	376,244	357,132	124,159	1,233,251	96,738	2,187,524	1,208,450	—8,167	88,744	1,111,539	229,922

Vienna, Ga., Discriminated Against.

Mayor and City Council of Vienna, Ga., v. Georgia Southern & Florida et al. Opinion by Commissioner Clements:

The commission decided that the present adjustment of rates from the Ohio river crossings, from Birmingham, Ala., and from Knoxville, Tenn., are unjustly discriminatory to Vienna, Ga., and unduly preferential to Cordele, Ga. The defendants were ordered to remove this discrimination. (28 I. C. C., 173.)

Rates on News Print Paper Not Reduced.

Atlanta Journal Company et al v. Seaboard Air Line et al. Opinion by Commissioner Clements:

The commission decided that the rates on news print paper from Bellows Falls, Vt., Franklin and Berlin, N. H., and Fort Edward and Brownville, N. Y., to Atlanta, Ga., were neither unreasonable, in violation of section 1 of the act to regulate commerce, nor unjustly discriminatory as compared with rates on wrapping paper from the same points of origin. The question whether unjust discrimination exists against Atlanta and in favor of Chattanooga, Tenn., as alleged, was reserved pending decision in the case of *Atlanta Freight Bureau v. S. Ry. Co.*, docket No. 4637. (28 I. C. C., 186.)

Commodity Rates from Colorado East Reduced.

Colorado Manufacturers' Association et al v. Atchison, Topeka & Santa Fe et al. Opinion by Commissioner Harlan:

Upon complaint that the class and commodity rates between Colorado common points and the east are excessive and unduly discriminatory the commission decided that the rates from Chicago and the Mississippi river to Colorado as fixed by the commission in *Kindel v. N. Y. N. H. & H. R. R. Co.*, 15 I. C. C., 555, are not shown to be unreasonable or unduly discriminatory, but the rates eastbound between the same points are unreasonable and must not exceed the westbound rates. The class rates between Colorado common points and the Missouri river were found to be excessive and reasonable rates were prescribed for the future. Reparation was denied. (28 I. C. C., 82.)

Mississippi River Case.

The State of Iowa et al. v. Atchison, Topeka & Santa Fe et al. Opinion by Commissioner Harlan:

The commission decided that the present rates between the upper Mississippi river crossings in the state of Iowa and points east of the Indiana-Illinois state line, were unreasonable and unjustly discriminatory when compared with the rates to the lower crossings. The present first-class rate between New York and the upper Mississippi river crossings is 97 cents per 100 lbs. The commission ordered that in future this rate should not exceed 90 cents, and reduced the rates on other classes correspondingly. The commission also ordered that the class rates between all other points in trunk-line territory and the upper Mississippi river crossings, to be established in conformity herewith, shall bear the same relation to the class rates between New York and the crossings above mentioned, as the class rates between the other points in trunk-line territory and the crossings have hitherto borne to the class rates between New York and the upper crossings. The record will be kept open for such other orders as may be required hereafter. (28 I. C. C., 47.)

Rates from Iowa to Utah and Colorado Reduced.

Iowa State Board of Railroad Commissioners v. Arizona Eastern et al. Opinion by Commissioner Prouty:

It appears that rates from eastern points of orgin to interior Iowa destinations are made by adding together the rate to the Mississippi river and the rate from that river to destination, and that rates from interior Iowa points to the west are made by adding together the local rate up to the Missouri river and the rate from that river; upon complaint that the through rates which result from the combination of these two are unreasonable and unjustly discriminatory, the commission held that the rates from these Iowa points to points in New Mexico should not be pronounced unlawful. The present rates between points in Iowa and the intermountain territory, of which Spokane, Reno, and Phoenix are illustrative, are not unlawful. Rates from Iowa points to Utah and Colorado common points are unreasonable. The state of Iowa should be divided into five zones as to this traffic, and rates from each zone should be constructed by adding to the Missouri river rate a fifth of the total spread now existing in rates between the Missouri and Mississippi rivers. Rates from such points to points in Kansas and Nebraska are unreasonable to the extent that they exceed the mileage scale of interstate class and commodity rates suggested in this report. (28 I. C. C., 193.)

Interior Iowa Cities Case.

State of Iowa et al v. Chicago, St. Paul, Minneapolis & Omaha et al. Opinion by Commissioner Harlan:

The rate adjustment upon which through charges are based on movements of class traffic, between points in the interior of Iowa and points in the territory east of the Indiana-Illinois state line is described and condemned as resulting in rates that are unreasonable and unduly discriminatory.

A proportional rate may not be condemned simply because it exceeds the local rate between the same points or because it may yield excessive earnings for that part of the through movement. A shipper has no real grievance with respect to his through traffic unless compelled to pay excessive charges for the through service. It frequently happens, however, that the through charge for a through service is unreasonable because one of its factors is excessive; in such a case on a proper record, as in this case, the excessive proportional may be reduced.

The through charges in question are found to be unreasonable and unduly discriminatory because of the excessive and discriminatory proportional rates applied between the Mississippi river and the interior Iowa points, and the defendants will be required to submit for approval a schedule of proportional class rates graded back across the state on the basis of the proportional scale of 55 cents between the rivers fixed in *Warnock Co. v. C. & N. W. Ry. Co.*, 21 I. C. C., 546. Reparation was denied. (28 I. C. C., 64.)

Manufacturers Railway Case.

Manufacturers Railway Company et al v. St. Louis, Iron Mountain & Southern et al. Opinion by Commissioner Clements:

The original report in this case was in 21 I. C. C., 304, mentioned in the *Railway Age Gazette* of July 14, 1911, page 100. Upon further consideration of this case on supplemental hearing, the commission decided that the Manufacturers Railway, as found in the original report, is a common carrier subject to the act to regulate commerce, but the original finding that the trunk lines serving St. Louis are subjecting its shippers to undue prejudice and disadvantage because they absorb the charges of the Terminal Railroad Association, the lines embraced within which they own or control, in order to make delivery on the rails of that association at the St. Louis rate, while refusing contemporaneously also to absorb the rate of the Manufacturers Railway, an independent terminal carrier, is reversed.

The payments formerly made to the Manufacturers Railway by the trunk lines serving St. Louis out of their through rates were absorptions in compensation for services rendered for the trunk lines, and were in no sense divisions of joint rates for services rendered for the shippers on the Manufacturers Railway, as they would necessarily be considered to be under joint rates prescribed by this commission.

There is a well-defined distinction between absorptions, allowances and divisions of joint rates, which once recognized in the establishment of the joint rate, will render immaterial the question whether, in this case, the stock of the Manufacturers Railway and of the Anheuser-Busch Brewing Association, its principal industry, is in common or independent ownership, as the latter will then necessarily be treated in all respects upon the same basis as will the shippers located on or served by the Manufacturers Railway who have no interest in that railway or in the brewing association.

The present payments to the Manufacturers Railway by the trunk lines serving St. Louis under their absorption tariffs are unlawful and should be canceled.

Through routes and joint rates should be prescribed between the trunk lines and the Manufacturers Railway, under which the trunk lines will retain their full rate to St. Louis, the division of the joint rate accruing to the Manufacturers Railway to be paid

to it by its shippers, including the Anheuser-Busch Brewing Association, instead of by the trunk lines. (28 I. C. C., 93.)

Carrollton, Ga., Discriminated Against.

Board of Trade of Carrollton, Ga., et al v. Central of Georgia et al. Opinion by Commissioner Clements:

Carrollton, Ga., is a local point on the Central of Georgia between Newnan, where the Atlanta & West Point crosses, and Cedartown, where the Seaboard Air Line intersects that road. It is less than 70 miles from Atlanta, but no direct line connects the two. Substantially, all long-distance rates to Carrollton, as well as to Atlanta, are based upon or bear relation to the rates from Baltimore, Md., and from Louisville, Ky. Atlanta has certain rates from Baltimore and from Louisville which are applied by the carriers at Cedartown, without addition or subtraction, but at Newnan and Carrollton the defendants make joint rates by adding certain differentials to the rates to Atlanta, which differentials are less than the local rates from Atlanta to Carrollton. Upon a complaint which alleges that these rates to Carrollton violate sections 1, 3, and 4 of the act, and specifically brings in question the basing-point system of rate making as applied at Carrollton, the commission held that the defendants, having filed applications to be relieved from the operation of the fourth section of the act, and determination of such applications by the commission not having been reached, this case may be decided under sections 1 and 3, reserving decision under section 4 until the commission passes upon the appropriate applications of the carriers.

The basing-point system of rate making does not now demand that joint through rates over long distances to local or non-competitive points should be made by adding to basing-point rates either the full locals or high differentials.

In the making of joint through rates on long-distance traffic to local or non-competitive points, the differentials above the rates to the basing points should bear some reasonable relation to the total distances involved, in order that the rates to the local points may be just and to avoid subjecting such local points to prejudice or disadvantage that is undue.

Where the long-haul traffic to local stations is meager, these differentials may be higher than otherwise they would be.

The present rates to Carrollton are unjust and unreasonable and subject that place to undue prejudice and disadvantage in that the defendants, in making rates on long hauls from Baltimore and related points and from Louisville and related points, add to the competitive rates to the basing point, Atlanta, differentials or arbitraries which, as component parts of joint through rates, are excessive and unreasonable when the total length of the haul is considered, and do not add such differentials or arbitraries to commercially competitive points, such as Cedartown.

In view of all the circumstances and conditions shown, differences and discriminations in rates as between Atlanta, Cedartown, and Carrollton may be justified; but the prejudice and disadvantage to which Carrollton may be subjected should not, for the present, exceed the differentials herein prescribed as maxima. Reparation was denied. (28 I. C. C., 154.)

Conference Rulings.

Free interstate transportation may lawfully be issued to officers of any railroad in an adjacent foreign country which has filed joint tariffs and concurrences in connection with interstate carriers in the United States without reservation as to the jurisdiction of the commission.

The Panama Railroad has not complied with the provisions of the act to regulate commerce in such a way as to make its officers and employees entitled to free transportation.

As to shipments from points in the United States to points in Mexico which are held at the border by reason of the carriers being unable to transport them to destination on account of revolutionary conditions in Mexico, the carriers will be permitted to file with the commission a proper application for authority to establish on one day's notice tariffs naming the conditions and rates under which they will return or otherwise dispose of the property which has been billed to points in Mexico and which they have been unable to deliver because of the revolutionary conditions in Mexico.

In a previous conference ruling the commission expressed the view that a transit privilege extended through a period of more than one year is *prima facie* unreasonable. Experience has shown, however, that as applied to import shipments of matting and tea which must be purchased in foreign countries in certain seasons and in large quantities, a transit period of 18 months is not unreasonable, provided full local rates to the transit point are required to be paid.

In connection with the published privilege of feeding and grazing in transit, or where carriers are required to feed livestock in transit, under the provision of an act approved June 29, 1906, commonly called the 28 hour law, carriers may lawfully provide in their tariffs that they will furnish feed at current market prices, and bill the cost thereof, together with an addition not exceeding 10 per cent. of such cost to cover the value of their services as advance charges.

Where there is an additional transfer or drayage charge in connection with a through shipment, the carriers' tariffs must specify what that charge shall be. If such drayage or transfer charge is absorbed, in whole or in part, by a carrier, the tariffs must show the amount of such transfer charge that will be absorbed. A drayage firm is not a proper party to a joint tariff nor is it a carrier under the provisions of the act; therefore no tariffs can properly be filed by it. There is no provision in the law which requires, and the commission has no authority to require, a carrier to confine such drayage service to one drayman or one firm of draymen. The question of who is responsible in case of loss and damage while a shipment is in charge of a truck man to whom it has been committed by the carrier is for the carrier to resolve, and not for the commission's determination.

Weighing Case.

In re Investigation of Alleged Irregularities and Discrepancies in the Weighing of Freight by Carriers Subject to the Act to Regulate Commerce. Opinion by Commissioner Prouty:

Inaccuracies in weighing result in the imposition of unreasonable charges and in discrimination between shippers just as really as do differences in the freight rate itself.

The record discloses that a majority of the track scales now in use should be at once rebuilt in order to obtain reasonably accurate results. It is also apparent that many additional scales should be installed.

A modern scale, properly installed and kept in proper condition, should be accurate within at least 100 lbs., and when under test it shows a variation of 100 lbs. or more it should be considered out of order. All scales should be tested by the test car at least once in two months; in many cases every month.

Cars should never be weighed in motion coupled at both ends. They may properly be weighed in motion when uncoupled upon scales especially designed for that purpose and in charge of thoroughly competent men. Cars should not ordinarily be weighed when coupled at one end, and never unless at points where the greatest attention is paid to the condition of the scale and the competency of the weighmaster.

A prolific source of error is the wrong stenciling of the tare weight of cars; when the car weighs more than the stenciled tare the shipper loses, while when the car weighs less than the stenciled tare the shipper gains. Correction of an erroneous stenciled weight is by a proper reweighing of the car at stated times.

Inaccuracies in weighing particular commodities, such as grain, coal and lumber, discussed and various remedies considered; and criticism of certain team-track weighing made.

General rules and practices of carriers whereby large amounts of carload freight are exempted from all weighing whatsoever considered and various criticisms and recommendations thereon made.

Remedies for the defects in weighing revealed by this investigation discussed at length, and the opinion advanced that some federal tribunal, perhaps this commission, should be given authority in the following respects: To fix the points at which track scales shall be installed; to prescribe the standard of such scales and their installation; to test or supervise the testing of such scales; and to supervise the operation. (28 I. C. C., 7.)

STATE COMMISSIONS.

The Missouri & North Arkansas has filed an application with the Missouri Public Service Commission, asking for author-

ity to increase its passenger rate to three cents a mile, and to charge freight rates higher than those required by the maximum freight rate law. The road contends that the two cent passenger and maximum freight rates are confiscatory.

COURT NEWS.

In the United States District Court at Pittsburgh, Pa., August 1, the Pennsylvania Railroad was fined $4,000 for thirty-four violations of the hours of service law. The company pleaded guilty to all but seven of the thirty-four violations charged.

Hearings in the suit of the state of Texas against the Missouri, Kansas & Texas, attacking the constitutionality of the act passed at the last session of the legislature authorizing the consolidation of various subsidiary lines of the Missouri, Kansas & Texas, were begun before a commissioner at Dallas on July 30. President C. E. Schaff, General Manager W. A. Webb, and General Freight Agent L. J. West testified regarding the organization of the various lines.

The Terminal Railroad Association of St. Louis has filed with the Federal Court at St. Louis a form of proposed reorganization as ordered by the United States Supreme Court. The proposed plan provides for the abolition of the arbitrary within the so-called 100-mile zone, permits of any common carrier enjoying the privileges of the Terminal's tracks and terminal facilities and otherwise conforms to the mandate of the Supreme Court. E. C. Crow, special representative of the Government, is now working on a form of decree which he will submit to the court, in which the arbitrary will be given special attention. The instrument now filed by the company permits a railroad to become either a joint owner of the property through assessment of cost of operation and maintenance or to enjoy the privileges at a fee to be agreed upon, any controversy arising from the agreement between the Terminal and lines applying to trackage rights to be submitted to the court for adjudication. Rebilling of freight originating in St. Louis from East St. Louis is done away with, and that section of the company's rules prohibiting any member of the association or road using its facilities from taking advantage of any other terminal facilities is annulled.

Iowa Passenger Fare Law Enjoined.

United States Judges Smith, McPherson and Van Valkenberg at Council Bluffs, Ia., on August 2, rendered a decision granting a permanent injunction against the enforcement of a passenger rate of 1½ cents a mile for the State Fair at Des Moines, which was prescribed in a law passed by the last session of the state legislature. The decision holds that the rate is confiscatory, and discriminates in favor of Des Moines as against other cities in the state.

INDIAN RAILWAY MILEAGE.—During the calendar year of 1912, 668 miles of new line were opened to traffic in India, bringing the total mileage in operation up to 33,484 miles. This figure comprises 17,189 miles of 5 ft. 6 in. gage; 14,165 miles of 3 ft. 3/in. gage; 1,692 miles of 2 ft. 6 in. gage, and 438 miles of 2 ft. gage.

RAILROAD NEWS.—The steam car South Carolina arrived at Charleston at half-past seven p. m. on the 15th from Branchville, 62½ miles, in 7 hrs. 15 min., all stoppages included. Eighteen passengers; cargo 70 bales of cotton. Stopped at Summerville 30 min. to discharge freight cars.—*American Railroad Journal, January* 5, 1833.

NEW STEAM CARRIAGE.—A steam carriage constructed by Col. Macirone and J. Squire, Paddington-wharf, and which professes to be by the superiority of its peculiar boiler, and the simplification of its machinery, a decided improvement on all former vehicles of that description, has been exhibited for some time past in the neighborhood of Paddington. We drove out in it a few days ago along the Harrow-road with, in all, 11 persons. The utmost velocity on level ground was near 10 miles an hour; a part of the road covered with a coating of loose wet pebbles was crossed at a rate of about eight miles; and the bridge over the Grand Junction Canal, where the steep is rather a smart one, at four or five miles an hour.—*Quotation from the London Times in the American Railroad Journal, January* 19, 1833.

Railway Officers.

Executive, Financial and Legal Officers.

J. B. McLaren, has been appointed auditor of freight accounts of the Grand Trunk, with office at Montreal, Que., in place of J. D. McLennan, assigned to other duties.

W. P. Hopper, local treasurer of the Georgia Southern & Florida, at Macon, Ga., has been appointed also secretary and treasurer of the Hawkinsville & Florida Southern.

J. E. Hall, general counsel of the Georgia Southern & Florida, has been appointed also vice-president and general counsel of the Hawkinsville & Florida Southern; office at Macon, Ga.

W. B. Buchannon, auditor of the Georgia Southern & Florida and the Macon & Birmingham, has been appointed also auditor of the Hawkinsville & Florida Southern; office at Macon, Ga.

V. L. Veasey has been appointed auditor of the Texas State Railroad, with headquarters at Rusk, Tex., in place of J. A. Shattuck, resigned to accept a position with the International & Great Northern.

J. S. Pyeatt, vice-president and general manager of the New Orleans, Texas & Mexico and the Beaumont, Sour Lake & Western, and vice-president of the Orange & Northwestern and the St. Louis, Brownsville & Mexico, has been appointed manager for the receiver of the St. Louis, Brownsville & Mexico, the Beaumont & Sour Lake and the Orange & Northwestern, with headquarters at Houston, Tex.

The executive committee of the Northern Pacific announces that after having carefully considered the situation created by the impending retirement from the presidency of the company by Howard Elliott, the committee has decided to recommend to the board of directors the following plan for meeting it:

"Creation of the office of chairman and promotion of W. P. Clough, now first vice-president, to fill the same.

"Promotion of J. M. Hannaford, now second vice-president, to be president.

"Promotion of G. T. Slade, now third vice-president, to be first vice-president."

Edson Prosper Rich, who recently was made assistant general solicitor of the Union Pacific, in addition to his duties as general attorney for the states of Iowa and Nebraska, as has already been announced in these columns, was born August 15, 1858, at Griggsville, Ill. He was graduated from the University of Nebraska in 1884 and took a post-graduate course at the Johns Hopkins University in 1884-1885. Mr. Rich was made assistant attorney of the Union Pacific for Nebraska in 1900, and from 1903 to 1904 he held the position also of general claims attorney for the entire system. In 1908 he was appointed general attorney for the states of Iowa and Nebraska, and effective July 1 this year he was made assistant general solicitor, still retaining the title of general attorney for Iowa and Nebraska, as above noted. The headquarters of Mr. Rich are at Omaha, Neb.

Edson Rich.

John H. Hunter has been chosen president of the Brinson Railway, with office at Savannah, Ga., in place of Geo. M. Brinson. The board of directors of this road has been reorganized as follows: James Imbrie, Thomas P. Goodbody and John F. Wallace of New York; Mills B. Lane, John H. Hunter, Robert M. Hitch and Henry D. Stevens of Savannah, and E. T. Comer of Millhaven. The new board elected James Imbrie, chairman;

Robert M. Hitch, secretary, and William Murphy, assistant secretary.

J. M. Johnson, vice-president in charge of traffic of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, who has been appointed vice-president in charge of traffic also of the Western Pacific and the Denver & Rio Grande, as recently announced in these columns, was born May 13, 1845, at Cincinnati, Ohio. He was educated in the public schools, and began railway work January 1, 1871, as station agent for the Indianapolis, Cincinnati & Lafayette at Franklin, Ind. He was successively general freight and ticket agent of the Cincinnati & Martinsville and traveling auditor of the Indianapolis, Cincinnati & Lafayette until 1877, when he was placed in charge of the local freight traffic of the latter road. From November, 1879, to January, 1883, he was assistant general freight agent of the Indianapolis, Cincinnati & Lafayette and the Cincinnati, Lafayette & Chicago at Lafayette, Ind. He was then made assistant general freight agent of the Cincinnati, Indianapolis, St. Louis & Chicago in charge of freight traffic originating in Chicago and the Northwest, and on March 1, 1884, went to the Chicago, Rock Island & Pacific as first assistant general freight agent. Four years later he was promoted to general freight agent of that road; from March, 1896, to March, 1899, was freight traffic manager, and on the latter date he became third vice-president. Mr. Johnson left the Rock Island on April 1, 1903, to accept the position of assistant to the vice-president of the Gould Lines, and on November 1, 1907, he was made vice-president in charge of traffic of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, with headquarters at St. Louis, Mo. His jurisdiction is now extended over the Western Pacific and Denver & Rio Grande, as above noted.

J. M. Johnson.

Operating Officers.

W. B. Allen has resigned as superintendent of transportation of the Chesapeake & Ohio of Indiana.

J. E. Duval has been appointed general superintendent of car service of the Grand Trunk, with office at Montreal, Que.

J. H. Conlan has been appointed general roadmaster of the Colorado lines of the Denver & Rio Grande, with office at Denver, in place of P. C. Connelly, resigned.

J. W. Forgason has been appointed assistant superintendent of the Victoria division of the Galveston, Harrisburg & San Antonio, with office at Victoria, Tex.

I. C. Schreck, heretofore on the Cleveland division, has been appointed train master of the Michigan division of the Cleveland, Cincinnati, Chicago & St. Louis, with office at Wabash, Ind.

James Doyle has been appointed assistant superintendent of the First division of the Houston & Texas Central, with office at Ennis, Tex., in place of H. M. Torrance, assigned to other duties.

B. C. Beyers has been appointed superintendent of the Peoria & Eastern division of the Cleveland, Cincinnati, Chicago & St. Louis, in place of M. E. Neville, promoted; office at Indianapolis, Ind.

W. F. Kaderly, superintendent of motive power of the Georgia Southern & Florida and the Macon & Birmingham, has been appointed general superintendent of the Hawkinsville & Florida Southern, with office at Macon, Ga.

J. H. Palmer, heretofore general manager of the Gulf Line, with office at Ashburn, Ga., becomes, under the new organization of the road, now the Hawkinsville & Florida Southern, superintendent and car accountant, with office at Ashburn.

E. S. Koller, assistant general manager of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been appointed assistant general manager of the lines west of the Missouri River, with headquarters at Omaha, Neb.; effective August 1.

H. W. Sheridan, general superintendent of the Louisiana Western and Morgan's Louisiana & Texas Railroad & Steamship Company, with headquarters at New Orleans, La., has resigned. Guy Hopkins has been appointed acting general superintendent in place of Mr. Sheridan.

J. A. Brown, assistant general freight agent, and C. W. Strain, assistant general passenger agent, of the St. Louis, San Francisco & Texas, Ft. Worth & Rio Grande, Brownwood, North & South and the Paris & Great Northern, have resigned, and the positions are abolished. Mr. Brown and Mr. Strain will retain their present positions with the south Texas lines of the Frisco.

S. S. Butler, heretofore assistant to the vice-president, in charge of traffic, of the Texas and Louisiana lines of the St. Louis & San Francisco, has been appointed traffic manager of the St. Louis, Brownsville & Mexico, Beaumont, Sour Lake & Western and the Orange & Northwestern, with headquarters at Houston, Tex. The offices of J. E. Springer, industrial agent, and F. W. Green, immigration agent, have been abolished.

F. P. Brady, general superintendent of the Canadian Government Railways, announces that L. S. Brown has been appointed superintendent of the Truro, Sydney and Oxford district of the Intercolonial in place of Y. C. Campbell, transferred; office at New Glasgow, Nova Scotia; and that H. B. Fleming has been appointed assistant superintendent of the National Transcontinental Railway between Moncton, N. B., and Edmundston.

George E. Patterson, whose appointment as superintendent of the Springfield division of the Illinois Central, with headquarters at Clinton, Ill., has already been announced in these columns, was born June 23, 1869, in Marion County, Illinois. He received a common school education and began railway work in October, 1889, with the Illinois Central as agent and operator at Laclede, Ill. During the next 14 years he was employed as agent and operator at various points, including Mattoon, Gilman, Rantoul, Champaign and Kankakee, Ill., and was then for one year yardmaster at Kankakee. In June, 1904, he was made division agent of the Illinois division, and the following May he became inspector of weights for the Illinois Central and the Yazoo & Mississippi Valley. Mr. Patterson was appointed trainmaster at Freeport in January, 1906, and was transferred to the Chicago district in a similar capacity in August, 1907, holding the latter position until July 15, when he was promoted to the superintendency of the Springfield division, as above noted.

G. E. Patterson.

M. Dailey, whose appointment as general manager of the Muscatine North & South was announced in the *Railway Age Gazette* last week, was born at Galesburg, Ill., March 7, 1865, and began railroad work on the Chicago, Burlington & Quincy, at Creston, Iowa, in 1880. When twenty years old he was a locomotive engineer. In 1888 he left the service of the Burlington and took a position as locomotive engineman on the Chicago Great Western.

After two years at this work he was promoted to the position of roundhouse foreman at Des Moines, and later was made traveling engineer, trainmaster, master mechanic, and, finally, superintendent. In 1911 he left the Chicago Great Western and went to Bellingham, Wash., as superintendent of machinery of the Bellingham Bay & British Columbia. After one year's service with this company he resigned and went to the Missouri, Kansas & Texas, where he was assistant superintendent, with headquarters at Parsons, Kan. This position he resigned on his recent appointment to the M. N. & S.

Macy Nicholson, whose appointment as assistant general superintendent of the Great Northern, with headquarters at Great Falls, Mont., has already been announced in these columns, was born in October, 1874, at Hagerstown, Ind. He was educated in the common schools at Hagerstown, and began railway work in October, 1891, with the Milwaukee, Lake Shore & Western as clerk in the superintendent's office at Ashland, Wis., remaining with the road and the Chicago & North Western (which absorbed the former company in August, 1893) until June, 1896. He was then for two years employed as bookkeeper and stenographer for the Rockefeller and United States Steel mines on the Gogebic iron range in upper Michigan. He returned to active railway service in June, 1898, as clerk in the office of James J. Hill, then president of the Great Northern. In April of the following year Mr. Nicholson was made chief clerk to the vice-president and general superintendent, and from February, 1903, to May, 1905, he was an assistant superintendent. On the latter date he was advanced to division superintendent, and was successively in charge of the Dakota, Butte and Fergus Falls divisions until July 20 of this year, when he was promoted to assistant general superintendent of the Central district, as above noted.

Traffic Officers.

John A. Morgan has been appointed general agent of the Scott City Northern at St. Louis, Mo.

E. H. Stockton has been appointed soliciting freight agent of the Norfolk & Western at Winston-Salem, N. C.

S. Y. Henderson, has been appointed commercial agent of the Hawkinsville & Florida Southern at Hawkinsville, Ga.

C. A. Smith has been appointed assistant general freight agent of the Carolina, Clinchfield & Ohio, with office at Johnson City, Tenn.

W. T. Peacock has been appointed general agent of the Cleveland, Cincinnati, Chicago & St. Louis at Indianapolis, Ind., in place of C. H. Jackson, resigned.

E. A. Niswonger has been appointed commercial agent of the Cleveland, Cincinnati, Chicago & St. Louis at Terre Haute, Ind., in place of W. W. Baum, transferred.

T. W. Trelford, Jr., traveling freight agent of the International & Great Northern, has been appointed commercial agent at San Antonio, Tex., in place of P. A. Sullivan, resigned.

J. A. Craig, freight claim agent of the Georgia Southern & Florida, has been made also freight claim agent of the Hawkinsville & Florida Southern, with office at Macon, Ga.

M. S. Kerley has been appointed traveling freight agent of the St. Louis Southwestern, with headquarters at Shreveport, La., in place of S. A. Martin, resigned to accept service elsewhere.

J. M. Cutler, general freight agent of the Georgia Southern & Florida and the Macon & Birmingham, has been appointed also general freight agent of the Hawkinsville & Florida Southern; office at Macon, Ga.

C. B. Rhodes, general passenger agent of the Georgia Southern & Florida and Macon & Birmingham, has been appointed also general passenger agent of the Hawkinsville & Florida Southern, with office at Macon, Ga.

William J. Faherty, contracting freight agent of the Wabash at Chicago, has been promoted to contracting freight agent at New York, succeeding F. D. Royce, who has been appointed commercial agent at Philadelphia, Pa. J. L. Craig, traveling freight agent at Toledo, O., has been transferred to Chicago in a similar capacity, succeeding H. W. Chandler, assigned to other duties.

A. E. Allen, heretofore chief clerk to the traffic manager, has been appointed assistant general freight agent of the Boston & Albany, with office at Boston, Mass., in place of W. A. Barrows, promoted. Mr. Allen was born at Harwichport, Mass., September 19, 1874, and entered railroad service in 1897 as a clerk in the office of the commercial agent of the Boston & Albany at Boston. His whole railroad service has been with that company. He was made chief clerk to the general freight agent in 1906, and since June 5, 1911, has held the position from which he is now promoted.

Frank A. Wadleigh, general passenger agent of the Denver & Rio Grande, has been appointed passenger traffic manager of that road and the Western Pacific, with headquarters at Denver, Colo. E. L. Lomax, passenger traffic manager of the Western Pacific, has been appointed assistant passenger traffic manager of that road and the Denver & Rio Grande, with office at San Francisco, Cal. A. S. Hughes, general traffic manager of the Denver & Rio Grande, will have jurisdiction also over the Western Pacific, with headquarters at Denver. H. M. Adams, freight traffic manager of the Western Pacific, has had his jurisdiction extended over the Denver & Rio Grande, with headquarters at San Francisco.

J. N. Githens, freight traffic manager of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, has been appointed assistant to J. M. Johnson, vice-president in charge of traffic of those roads and the Denver & Rio Grande and Western Pacific, with headquarters at St. Louis, Mo. C. E. Perkins, assistant general traffic manager of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, succeeds Mr. Githens as freight traffic manager, and the former position is abolished. W. I. Jones, assistant general freight agent of the Missouri Pacific and St. Louis, Iron Mountain & Southern, has been appointed assistant to the general traffic manager, with headquarters at St. Louis. Effective August 1. A photograph and sketch of Mr. Perkins were published May 30, 1913, page 1203.

Walter A. Barrows, heretofore assistant general freight agent, has been appointed general passenger agent of the Boston & Albany, with office at Boston, Mass., in place of A. S. Hanson, deceased. Mr. Barrows was born in Camden, Me., July 31, 1867. He entered the service of the Boston & Albany in March, 1892, as a clerk in the office of the ticket auditor at Boston. He subsequently served in a similar capacity in the office of the freight auditor and of the general freight agent; and after the lease of the Boston & Albany to the New York Central, he was for a short time employed in the office of the freight claim agent in New York City. On February 2, 1903, he was appointed eastbound contracting freight agent at Boston; on August 1, 1906, was promoted to division freight agent at Pittsfield, and on December 1, 1907, was made division freight agent at Worcester. On April 1, 1913, he was made assistant general freight agent, with office at Boston, which place he held at the time of the promotion now announced. Mr. Barrows was graduated from Yale college in the class of 1891.

W. A. Barrows.

The traffic department of the Intercolonial announces the following appointments, effective August 1:

D. A. Storey, general freight agent, has his authority extended over the Prince Edward Island Railway.

H. H. Melanson, acting general passenger agent, is made general passenger agent, with office at Moncton, N. B. E. Tiffin is appointed general western agent, at Toronto. H. H. Schaefer, division freight agent at Moncton, has charge of the territory

in New Brunswick, north and east of Moncton. S. G. Tiffin, Moncton division freight agent, has charge of the territory in New Brunswick west of Moncton. D. M. Condon, heretofore acting district passenger agent, is appointed district passenger agent at Halifax, N. S. D. McDonald is appointed district passenger agent, with office at Montreal.

Engineering and Rolling Stock Officers.

I. M. Page has been appointed signal supervisor of the Chicago & Alton at Bloomington, Ill., in place of R. D. Boynton, resigned.

J. L. Cunningham has been appointed master mechanic of the Philadelphia, Baltimore & Washington, with office at Wilmington, Del., in place of C. G. Turner, resigned.

The office of superintendent of motive power of the New Orleans, Texas & Mexico and the St. Louis, Brownsville & Mexico, heretofore held by C. M. Hoffman, has been abolished.

W. T. Cousley, chief car inspector of the Elgin, Joliet & Eastern, at Gary, Ind., has been appointed master car builder of the San Antonio & Aransas Pass, with headquarters at San Antonio, Tex.

C. L. McIlvaine has been appointed master mechanic of the New York, Philadelphia & Norfolk, with office at Cape Charles City, Va., in place of J. L. Cunningham, who has been appointed to a similar position on the P. B. & W.

E. M. Wilcox, division general foreman of the Chicago, Indiana & Southern and the Indiana Harbor Belt, has been appointed division general foreman of the Lake Shore & Michigan Southern, with headquarters at Englewood, Ill., succeeding George Thomson, promoted.

Purchasing Officers.

Samuel Porcher, whose appointment as purchasing agent of the Pennsylvania Railroad, with office in Philadelphia, Pa., has been mentioned in these columns, was born in South Carolina on December 21, 1857. He was educated at the University of Virginia, graduating in the class of 1881. On January 27, 1882, he began railway work as an apprentice in the Altoona shops of the Pennsylvania Railroad. He went through a full shop course, including the test department, remaining in the mechanical department of the Pennsylvania Railroad at Altoona until 1888. From 1888 to 1894 he was assistant engineer in the motive power department of the United Roads of New Jersey division of the Pennsylvania Railroad with office in Jersey City, N. J. On March 1, 1894, he was appointed assistant purchasing agent of the Pennsylvania Railroad with office in Philadelphia, which position he retained until his appointment as purchasing agent of the Pennsylvania Railroad, as mentioned above.

Samuel Porcher.

Transportation in Madras.—It is suggested that the needs of better transportation facilities in the Madras presidency might be met, in the absence of railway extensions, by putting industrial motors on the roads. A Madras correspondent of an Indian contemporary remarks that the leap from railways to motor traffic is easy and that the increased utilization of road traction would be justifiable, if only from the point of view of not putting all your traffic eggs in one basket. The demand for more ample traveling and freight car facilities forms one of the principal themes at the meetings of the District Boards. It is constantly coming under the consideration of trades people and of their Chambers of Commerce. The need is universal and insistent.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Norfolk & Western is in the market for 10 Pacific type locomotives.

The Bartlett Western has ordered 1 mogul locomotive from the Baldwin Locomotive Works.

The Pere Marquette has ordered 10 mikado locomotives from the Baldwin Locomotive Works.

The Paulista Railway, Brazil, has ordered 2 prairie locomotives from the Baldwin Locomotive Works.

The Cuban American Sugar Company has ordered 1 mogul locomotive from the Baldwin Locomotive Works.

The Canadian Northern is making inquiries for 15 consolidation locomotives and 15 switching locomotives.

The Chicago & Eastern Illinois has ordered 2 Pacific type locomotives from the American Locomotive Company. These locomotives will be equipped with superheaters, will have 26½ in. x 28 in. cylinders, 73 in. driving wheels and in working order will weigh 272,000 lbs.

The Cuban Central has ordered 3 ten-wheel locomotives, 4 consolidation locomotives and 1 six-coupled double end tank locomotive from the American Locomotive Company. The ten-wheel locomotives will be equipped with superheaters, will have 18 in. x 24 in. cylinders, 56 in. driving wheels, and in working order will weigh 118,000 lbs. Three of the consolidation locomotives will be equipped with superheaters, will have 18 in. x 24 in. cylinders, 50 in. driving wheels, and in working order will weigh 125 lbs.; and the other consolidation locomotive will have 16 in. x 20 in. cylinders, 38 in. driving wheels, and in working order will weigh 101,000 lbs. The six-coupled double end tank locomotive will have 17 in. x 24 in. cylinders, 50 in. driving wheels, and in working order will weigh 106,000 lbs.

CAR BUILDING.

Chicago & Illinois Midland is in the market for 250 gondola cars.

The Charlotte Harbor & Northern is in the market for 50 flat cars.

The Norfolk & Western is building 700 ninety-ton gondola cars at the company's shops.

The New York Central Lines are making inquiries for 400 steel underframes for heavy repairs to freight cars.

The Lehigh Valley has ordered 500 steel underframes from the Standard Steel Car Company for heavy repairs to cars.

SIGNALING.

The New York, New Haven & Hartford is gradually installing on its four track lines automatic block signals in place of the controlled manual system. Automatics have already been put in use between Stamford and South Norwalk, 9 miles, and the work is to be extended eastward to Bridgeport and then to New Haven; and the whole line, Stamford to New Haven, about 40 miles, is expected to be equipped by the first of next January. Work has been begun on the substitution of semaphores for the enclosed disk signals on the double track line from New Haven to Springfield, 62 miles. Three-position semaphores are to be used on this division and the arms will move in the upper left hand quadrant. Alternating current is to be used in all of the new signals for track circuits, for signal circuits and for lighting. On the line from New Haven to Stamford, there will be duplicate wires for supplying current, one circuit being supported on the south side of the roadway and the other on the north side, this to provide as effectually as possible against interruptions of service from loss of tower. Independent signal generating units are to be put in at the Cos Cob power house.

Supply Trade News.

The Hall Switch & Signal Company, New York, opened a branch office in the New Birks building, Montreal, Que. B. H. Richards will have charge. Heretofore all the Canadian business of this company has been handled through the New York office.

J. C. Tipton has been made Canadian representative of the Galena Signal Oil Company, New York, with office in Montreal, Que., succeeding A. Lichtenhein, deceased. After September 1, the Montreal office of this company will be located in the Shaughnessy building.

The Taylor-Wharton Iron & Steel Company, High Bridge, N. J., has opened a branch office in the Candler building, Atlanta, Ga., in charge of H. F. McDermott, as engineer and district sales manager. This office will also be a branch office of Wm. Wharton, Jr., & Co., Inc., Philadelphia, Pa.; the Tioga Steel & Iron Company, Philadelphia, and the Philadelphia Roll & Machine Company, Philadelphia.

L. C. Noble, vice-president of the Pittsburgh Spring & Steel Company, whose death at his home in Evanston, Ill., was noted in our issue of July 25, was born at Ann Arbor, Mich., July 24, 1842. In October, 1862, he became foreman of the machine shop of the Detroit Locomotive Works, holding that position until 1863. From 1863 to 1867, he was employed in the shops of the Chicago & North Western at Chicago. From 1872 to 1874, he was general foreman of the Houston & Texas Central, and in May, 1874, was appointed general master mechanic for the same road. Subsequently he was for several years prior to 1890 superintendent of motive power of the same road. In 1890 he became associated with the A. French Spring Company, as western manager of sales, and in 1902 he resigned that position to become vice-president of the Pittsburgh Spring & Steel Company, with office at Chicago, which position he held at the time of his death.

L. C. Noble.

TRADE PUBLICATIONS.

Concrete Work.—The Pittsburgh Testing Laboratory, Pittsburgh, Pa., has issued booklet C of specifications for cement, reinforcement bars and concrete.

Compressors.—The Chicago Pneumatic Tool Company has issued bulletin 34 R, describing its class L-SS and L-SB compressors of the enclosed self-oiling type.

Couplers.—The Robinson Coupler Company, Washington, D. C., has published an attractive booklet illustrating and pointing out the advantages of the Robinson Connectors.

Culverts.—The Portsmouth Culvert Company, Portsmouth, Ohio, has issued an illustrated booklet describing the manufacture and use of its Butt-Joint Nestable corrugated metal culverts, including descriptions of various installations.

Motor Cars.—The Chicago Pneumatic Tool Company has issued an illustrated booklet describing the Rockford railway motor cars of various types, and including some interesting figures showing the actual costs of operation of the Rockford cars in service.

Railway Construction.

Anthony & Northern.—This company has completed its six-mile line from a connection with the Chicago, Rock Island & Pacific at Pratt, Kan., to a connection with the Missouri Pacific at Iuka, Kan. This line will be extended north from Iuka in the near future.

Dayton, Middletown & Cincinnati (Electric).—An officer writes that this company will build from Dayton, Ohio, to Cincinnati via Carlisle, Germantown, Middletown, Monroe, Bethany, West Chester, Sharonville and Reading. The line will be about 55 miles long and will run north and south. The prospects of building are excellent, but no track has been laid as yet. Surveys are now being made. The route is good, free from flood danger, and is almost an air line. James G. Miller, West Chester, is president, and E. H. McKnight, Middletown, is general manager.

Denver & Salt Lake.—This company will begin laying rails within a few days on its extension from Steamboat Springs to Craig, and expects to have the line completed about September 20. Grading is 95 per cent. finished from Steamboat Springs to Hayden, and is entirely finished from Hayden to Craig.

Kingston & Excelsior Springs (Electric).—An officer writes that this company will build a line from Kingston, Mo., southwest to Excelsior Springs, via Elmira and Lawson, about 25 miles. The prospects of building are good, but the preliminary surveys have not been completed as yet. The work will be comparatively light, the maximum grade being 2 per cent. and the sharpest curve 3 degrees. The line will carry grain, hay, live stock, stones, coal and passengers. E. S. Boner, Kingston, is president, and F. Cawood Rogers is chief engineer.

Motley County.—An officer writes that work is under way on the line of this company from a point 3½ miles east of Roaring Springs, Tex., to Matador, 8 miles. Six miles of grading has been finished, but no track has been laid as yet. Frank Fennen, of Matador, has the contract for grading. The work is light, the maximum grade being 0.9 per cent., and the sharpest curve 3 degrees. There will be four trestles with an average length of 50 ft. The road will carry cotton, coal, lumber and general merchandise. The line will be eventually extended to Memphis on the Fort Worth & Denver City on the north and to Spur, Tex., on the south, a total distance of 120 miles.

New York Subways.—The New York Public Service Commission for the First district has executed a contract with the E. E. Smith Contracting Company for the construction of that section of the Broadway-Manhattan subway lying between Union Square and Twenty-sixth street. The total amount of the Smith company's bid was $2,056,702.50. The plans call for a four track underground railroad with one-half of the express station at Union Square and a local station at Twenty-third street and Madison Square.

Pawhuska & North Eastern.—An officer writes that this company will build from Pawhuska, Okla., to Caney, Kans., and also to Skedee, Okla. No track has been laid as yet, but three miles of grading has been finished. The country to be traversed is level and the maximum grade will be 1 per cent. The amount of earth to be moved will not exceed 8,000 cu. yds. per mile. The sharpest curve will be 10 deg. There will be three bridges varying in length from 80 ft. to 120 ft. There will be no tunnels and only a few trestles. The principal commodities to be carried in order of their importance according to the amount of revenue resulting, are cattle, farm products, and other merchandise. J. B. Tolson is president.

San Antonio, Uvalde & Gulf.—An officer writes that the earth to be moved on the extension of this company's line from Pleasanton, Tex., south to Corpus Christi, via Mathis, will average about 20,000 cu. yds. per mile. The grade will be 0.5 per cent. and the maximum curve will be 3 degrees. The streams through this territory rise rapidly, and as a result the construction will be expensive. There will be eight steel bridges varying in length from 100 ft. to 400 ft. The bridge over the Medina river, it is said, will be the highest pile bridge ever driven in Texas. The road will carry cattle, cotton, onions, corn, hay and

produce. A. R. Ponder, San Antonio, Texas, is president, and E. R. Breaker, Pleasanton, is chief engineer.

Surprise Valley Railway.—Incorporated in Utah to build from Reynard, Nev., on the Western Pacific, to the state line of Nevada and California at the southern end of Surprise valley, about 55 miles. When this line has been completed the incorporators will organize another company and build from the northern terminus through the Surprise valley to Cedarville, Cal., 35 miles. The incorporators are F. E. Bush, president; J. E. Sexton, chief engineer, both of Palisade, Nev.; John Fritz, Geo. C. Turner and H. L. Merryfield, all of Cedarville; and H. L. Rood, E. L. Perkes and G. E. Walker, all of Salt Lake City, Utah.

Washington & Old Dominion.—Surveys have been made for the proposed extension of this company's line from Bluemont, Va., to Berryville, where a connection with the Norfolk & Western will be made, and from Berryville to a connection with the Baltimore & Ohio at Winchester.

RAILWAY STRUCTURES.

Black Rock, N. Y.—The Grand Trunk is planning to build a new passenger station and freight depot at this point. As planned at present, the passenger station will be built south of the track and abutting on the Niagara Street subway, and the freight station will be built just opposite on the north side of the track. The passenger station will be about 150 ft. x 40 ft., with a brown stone foundation and two stories of brick. The freight depot will be similar in size and general construction. The estimated cost of the two buildings is $75,000.

East St. Louis, Ill.—The St. Louis Southwestern, through a newly incorporated subsidiary called the Valley Terminal Association, has purchased about 140 acres of land on which to erect a roundhouse, shops and other terminal buildings, and a yard with a capacity of about 5,000 cars.

Glenwood, Pa.—The Baltimore & Ohio has given a contract to the Dravo Contracting Company, Pittsburgh, Pa., for the substructure of a double track steel bridge at this point. The bridge will be 1,000 ft. long and the contract for the superstructure will be let in the near future.

Los Angeles, Cal.—The Atchison, Topeka & Santa Fe Coast Lines have awarded a contract for a "Unit-Bilt" reinforced concrete 25-stall roundhouse at Redondo Junction, near Los Angeles, to the Van Sant Houghton Company of San Francisco.

New Haven, Conn.—The New York, New Haven & Hartford will renew four bridges on its line between East Hartford, Conn., and Springfield, Mass. Two will be at Hazardville, one at Broad Brook, and one at Springfield. The new bridges will be capable of bearing 200,000 lbs. carweight, while the bridges they will replace are capable of a carweight limit of only 100,000 lbs. On the Rockville Branch, three bridges near Vernon, will be reconstructed to bear a 156,000 lbs. carweight, and on the line from Hartford, steel bridges capable of sustaining 200,000 lbs. carweight will replace the present wooden bridges at Millville Heights, East Thompson, East Douglass, Thompson and Putman.

Redondo Junction, Cal.—The Atchison, Topeka & Santa Fe has given a contract to the Van Sant Houghton Company, San Francisco, Cal., for the construction of a Unit-Built reinforced concrete, 25-stall roundhouse at this point.

Silsbee, Tex.—The Gulf, Colorado & Santa Fe has asked bids on an eight-stall brick and concrete roundhouse.

Temple, Tex.—The Atchison, Topeka & Santa Fe will begin work immediately on a new roundhouse at this point to cost about $25,000.

Texarkana, Tex.—The St. Louis Southwestern has begun work on a new 16-stall roundhouse at this point.

Toronto, Ont.—The Canadian Pacific will build another addition to its passenger car repair shop at this point. The new building will be one story high and will be built of brick and concrete foundation. John Hayman & Son Company, London, Ont., have secured the concrete contract for this building, which will cost about $26,000.

Railway Financial News

Chicago, Terre Haute & Southeastern.—Holders of the $6,500,000 income mortgage bonds are to receive 1¼ per cent. on coupon No. 9, dated September 1, 1913. The interest on these bonds was a non-cumulative 4 per cent. rate up to December 1, 1912, and semi-annual payments of 1 per cent. each were made on September 1, 1911, and March 1 and September 1, 1912, and March 1, 1913. Since December 1, 1912, the bonds provide for cumulative interest at the rate of 5 per cent., and the present payment will make 2¼ per cent. paid in 1913.

Detroit, Toledo & Ironton.—The sale of the $1,014,000 preferred stock of the Ann Arbor, which is deposited under the Detroit, Toledo & Ironton consolidated mortgage, has been adjourned to August 28.

Hawkinsville & Florida Southern.—This company, of which John B. Munson is president and general manager, on August 1 took over the operation of the line from Hawkinsville, Ga., southwesterly to Camilla, Ga., 97 miles, and including also the 14-mile line from Hawkinsville westward to Grovania, on the Georgia Southern & Florida. The lines here referred to are those which appear in the *Official Guide* under the name of the Gulf Line. The H. & F. S. proper extends from Hawkinsville to Worth, 42.5 miles. This has hitherto been operated by the Gulf Line. From Worth to Ashburn, 3 miles, the track of the Georgia Southern & Florida is used. All of the properties are owned in the interest of the Georgia Southern & Florida; and the G. S. & F., in turn, is controlled by the Southern Railway. Bonds to the amount of $261,000 of the Hawkinsville & Florida Southern are to be issued in connection with the change, which appears to be virtually a consolidation of the H. & F. S. and the Gulf Line. Mr. Munson is vice-president and general manager of the G. S. & F. and also is Receiver of the Macon & Birmingham. The names of the officers of the new organization are given in another column. Most of these officers hold similar positions in the organization of the G. S. & F or of the Macon & Birmingham.

Hocking Valley.—The Ohio Public Service Commission has authorized the issue of $1,000,000 5 per cent. equipment trust certificates. The certificates are to be secured by 1,000 50-ton coal cars, six Mikado locomotives and certain other equipment.

Illinois Central.—Kuhn, Loeb & Company, New York, bought from the company $3,500,000 5 per cent. equipment trust notes and resold them to Lee, Higginson & Company, Boston, and Kissel, Kinnicutt & Company, New York, and these bankers are offering them to the public at a price to yield 5½ per cent. interest on the investment. The certificates represent 80 per cent. of the cost of the new equipment on which they are secured.

New York, New Haven & Hartford.—Control of the New England Investment & Securities Company has been sold by the New Haven to Sanderson & Porter, electrical engineers, 50 William street, New York. Control is vested in the $100,000 common stock, which alone has voting power, and the $4,000,000 preferred stock of the Investment company is held by the public, and 4 per cent. dividends are guaranteed on it by the New Haven, with a further guarantee of $105 per share in the event of liquidation. The Investment company has $15,000,000 notes outstanding, guaranteed principal and interest by the New Haven. The New England Investment & Securities Company controls the Worcester & Southbridge Street Railway, the Worcester & Blackstone Valley Street Railway, the Worcester Railways & Investment, the Springfield & Eastern Street Railway, the Milford, Attleboro & Woonsocket Street Railway, the Springfield Railways, the Springfield Street Railway, the Hartford & Worcester, and the Uxbridge & Blackstone Street Railway.

New Orleans, Texas & Mexico.—The receivers of this subsidiary of the St. Louis & San Francisco have asked permission of the court to issue about $1,000,000 receivers' certificates. It is estimated that about 18 months of work and between $2,000,000 and $3,000,000 will be required to put the N. O. T. & M. in thoroughly good physical condition.